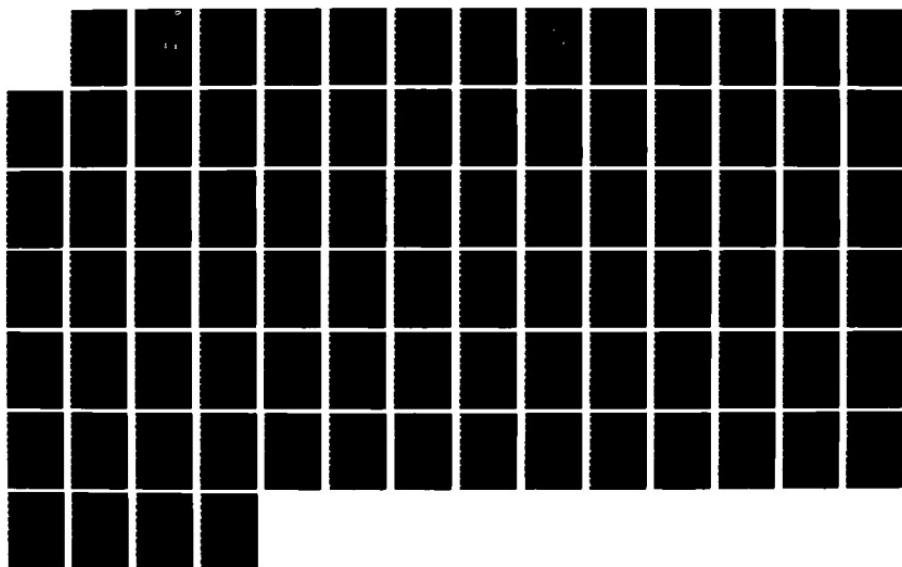


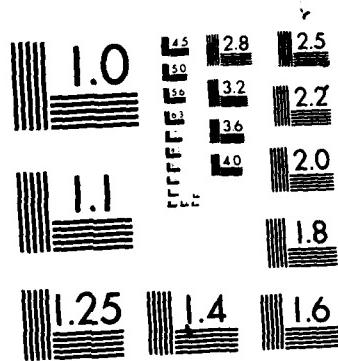
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June 1986



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US Army Corps
of Engineers

Cold Regions Research &
Engineering Laboratory

A description of the building materials data base for Portland, Maine

Carolyn J. Merry and Perry J. LaPotin

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) A building materials sampling program for the Portland, Maine, region was conducted in July and August 1984 to examine the types and amounts of building surface materials exposed to acid deposition. The stratified, systematic, unaligned random sampling approach was used to generate sample points across the six sampling frame areas. A minimum of 70 sample points was examined per sampling frame to yield a total sample size of 461 points. Building sizes, surface materials, roof characteristics, roof-mounted apparatus, chimneys, gutters, downspouts and fences were recorded. This report provides an initial summary of the data collected. K. J. LaPotin		

PREFACE

This report was prepared by Carolyn J. Merry, Research Physical Scientist, Earth Sciences Branch, Research Division, U.S. Army Cold Regions Research and Engineering Laboratory, and Perry J. LaPotin, Senior Programmer, Department of Physics and Astronomy, Dartmouth College, Hanover, New Hampshire. This research was funded under the U.S. Army Corps of Engineers Civil Works Remote Sensing Research Program, CWIS 32297, Demonstration of Satellite Digital Data in Corps Planning, Engineering and Operational Activities, in cooperation with the National Acid Precipitation Assessment Program run the the U.S. Environmental Protection Agency.

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A DESCRIPTION OF THE BUILDING MATERIALS DATA BASE FOR PORTLAND, MAINE

Carolyn J. Merry and Perry J. LaPotin

INTRODUCTION

Background

The Interagency Task Force on Acid Precipitation manages the National Acid Precipitation Assessment Program (NAPAP). There are ten Task Groups, one for each of the nine research areas in the National Program and one for international activities (Table 1). The goal of NAPAP is to develop and improve a data base that will help us understand the causes and effects of acid deposition and how it can be effectively managed. Our work on the acid rain program has been with the Environmental Protection Agency in support of Task Group G, which looks at Effects on Building Materials and Cultural Resources, as part of the ongoing effort to examine the type and magnitude of building materials exposed to acid deposition in the north-eastern United States.

Table 1. The ten Task Groups within the National Acid Precipitation Assessment Program (after Interagency Task Force on Acid Precipitation 1984).

Task group	Coordinating agency*
A	Natural sources
B	Man-made sources
C	Atmospheric processes
D	Deposition monitoring
E	Aquatic effects
F	Terrestrial effects
G	Effects on materials and cultural resources
H	Control technologies
I	Assessments
J	International activities

* NOAA - National Oceanic and Atmospheric Administration
DOE - Department of Energy
DOI - Department of Interior
EPA - Environmental Protection Agency
USDA - United States Department of Agriculture
DOS - Department of State

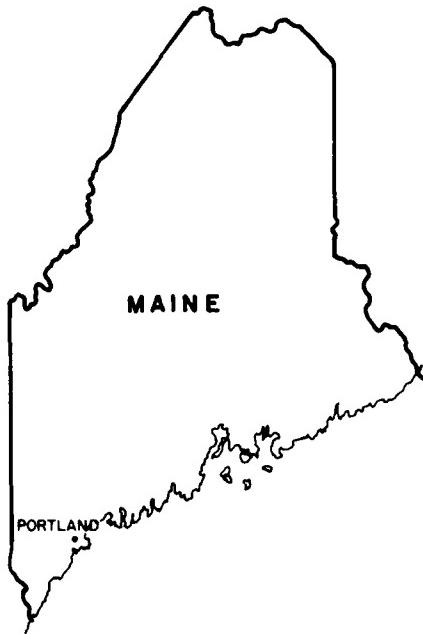


Figure 1. Location of Portland, Maine.

Objective

The purpose of this report is to present the data base of building materials collected for Portland, Maine (Fig. 1). This city was selected as it was similar in land area and population size to New Haven, Connecticut,* where similar data were collected. The data from New Haven and Portland can then be compared to see how well one city's characteristics could be extrapolated from the other city. Distribution summaries will be presented in the form of frequency tables, histograms and bar charts. In future reports the data will be analyzed to determine the suitability of various indicators in predicting the building materials distribution.

DESIGN OF THE FIELD SAMPLING PROGRAM

Sampling frame definition

The city of Portland, Maine, was subdivided into the sampling frames of Urban Central Business District (UCBD), Urban Livelihood, Industrial-Commercial (ULIC), Urban Multi-Family Residential (UMFR), Urban Single-Family Residential (USFR), Nonurban Suburbanizing (NSUB) and Nonurban Rural

* Personal communication with J. Wray, U.S. Geological Survey, 1984.

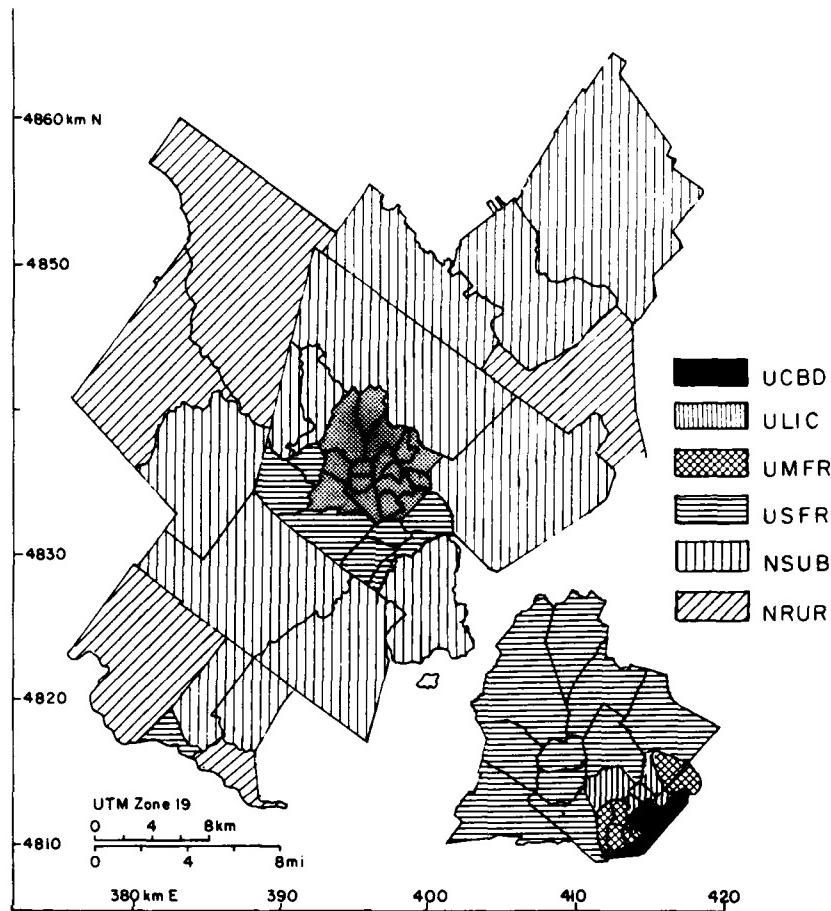


Figure 2. Sampling frames for the Portland, Maine, area (map provided by J. Wray, Urban Geographer, U.S.G.S.).

(NRUR) (Fig. 2). Each sampling frame consists of a number of census tracts that have a commonality on the basis of population density, single-unit dwellings and land use (Rosenfield 1984). The two 1980 census variables were population density in persons per square kilometre and percent of dwelling units in one-unit structures. The three variables of land use (circa 1973) were percent of area with residential buildings, percent of area with nonresidential buildings and percent of area that is open land (Table 2). The water surface area within a tract was not considered. These data were used in the Statistical Analysis System (SAS) to group the tracts into sampling frames.*

* Personal communication with J. Wray, U.S. Geological Survey, 1984.

Table 2. The U.S. Geological Survey land use and land cover categories (after Anderson et al. 1976 and Rosenfield 1984).

<u>Collapsed categories</u>	<u>Level I</u>	<u>Level II</u>
Built residential	1 Urban or builtup land	11 Residential
Built nonresidential		12 Commercial and services 13 Industrial 14 Transportation, communications and utilities 15 Industrial and commercial complexes 16 Mixed urban or builtup land 17 Other urban or builtup land
	2 Agricultural land	
Open land, with buildings		21 Cropland and pasture 22 Orchards, groves, vineyards, nurseries and ornamental horticultural areas 23 Confined feeding operations 24 Other agricultural land
	3 Rangeland	
Open land, without buildings		31 Herbaceous rangeland 32 Shrub and brush rangeland 33 Mixed rangeland
	4 Forest land	
		41 Deciduous forest land 42 Evergreen forest land 43 Mixed forest land
Omitted from analysis	5 Water	
		51 Streams and canals 52 Lakes 53 Reservoirs 54 Bays and estuaries
Open land, without buildings	6 Wetland	
		61 Forested wetland 62 Nonforested wetland
	7 Barren land	
		71 Dry salt flats 72 Beaches 73 Sandy areas other than beaches 74 Bare exposed rocks 75 Strip mines, quarries and gravel pits 76 Transitional areas 77 Mixed barren land

Selection of sample points

The sample size of 70 was calculated previously from the Revere, Massachusetts, data base of buildings (Merry and LaPotin 1985a) by multiplying the minimum sample size determined from the cumulative multinomial distribution (30) by the design effect (2.34) from the Revere data (Rosenfield 1984).

The sample points were generated by the U.S. Geological Survey using a stratified, systematic, unaligned random sampling procedure. Previously, a similar sampling procedure (stratified, systematic, unaligned) was used by the U.S. Geological Survey for selecting samples for use in accuracy testing of the land use and land cover maps produced under the National Land Use and Land Cover Mapping Program (Ling and Rosenfield 1980). An advantage of the systematic sampling algorithm is that it distributes the sample units equitably over the entire sampling frame. In addition, sample points are area weighted, and proportionally allocated on the basis of area (Rosenfield 1984). Table 3 displays the total number of points that were generated for the Portland field survey program. The UTM coordinates for each sample point are shown in Appendix A.

Each sample point had a corresponding "footprint" or a given spatial area on the ground that had to be examined in the field. We used the same footprint areas as we had used in New Haven (Table 4) because of the unavailability of the 1980 census data at the time of the field work (see Merry and LaPotin [1985b] for a description of how the footprint size was determined). We felt that these values were reasonable to use since the two cities were comparable in land area and population density.*

Table 3. Number of sample points for the Portland, Maine, building materials inventory.

Sampling frame	Number of points with buildings	Number of empty points	Total points
UCBD	42 (50%)	42 (50%)	84 (100%)
ULIC	59 (72%)	23 (28%)	82 (100%)
UMFR	44 (56%)	34 (44%)	78 (100%)
USFR	36 (49%)	38 (51%)	74 (100%)
NSUB	24 (34%)	46 (66%)	70 (100%)
NRUR	15 (20%)	58 (80%)	73 (100%)
Total	220 (48%)	241 (52%)	461 (100%)

* Personal communication with J. Wray, U.S. Geological Survey 1984.

Table 4. Footprint sizes for the Portland, Maine, sampling frames.

Sampling frame	Footprint size (ft) (m)	
UCBD	139	42
ULIC	144	44
UMFR	90	27
USFR	87	26
NSUB	364	111
NRUR	364	111

Field survey

The field program began in July 1984 and was completed within two months by two-person teams. One person normally recorded the dimensions and material types of the building; the other person took photographs of the building and used an optical rangefinder to determine its height.

The building worksheet was developed for a committee composed of representatives from CRREL, the EPA's Environmental Sciences Research Laboratory at Research Triangle Park and the U.S. Bureau of Standards. The worksheet form was designed to provide information on: the spatial location of the building in UTM coordinates; characteristics of the surrounding terrain in terms of census tract, land use type and sampling frame; dimensions and type of building; lot size dimensions; materials distribution percentages in the foundation, first story, and all above stories; and the surface area and material types for the roof, roof-mounted apparatus (vents, flues, stacks, skylights and flashing), chimneys, rain gutters, downspouts and fences. The worksheet used in the Portland field survey is shown in Appendix A. The worksheet was redesigned from the New Haven survey to allow more space for recording the data. Also, the column fields (from which the data variables were recorded) were placed on the worksheet to make it easier to code the data onto sheets for typing into the computer.

DATA DESCRIPTION

Each sample point was recorded on an individual data sheet during the survey. If the sample point was empty, the sections concerning description of the building were coded as zeros. If there was more than one building per sample point, a separate worksheet was completed for every building. These worksheets were used to develop a composite building. The composite worksheet represents the distribution of materials found for all the buildings in the footprint. The data were checked several times using the procedures described in Appendix A.

The variables assigned to the Portland field data are described in Appendix B. The frequency runs for the variables are organized by variable type (e.g., major classification, census tract data, general building description). The page formats are organized so that for each variable, numeric summaries are provided first (e.g., the labels for each value with frequency of occurrence and percent of the distribution), followed by graphic presentation (histogram or bar chart), and ending with statistical summaries (e.g., mean, mode, skewness and kurtosis). The sample size is presented at the bottom of each summary section, along with the number of missing observations. Each observation corresponds to a sample point within one of the six sampling frames in Portland. Figure 3 is an example of how the frequency runs are presented in Appendix B.

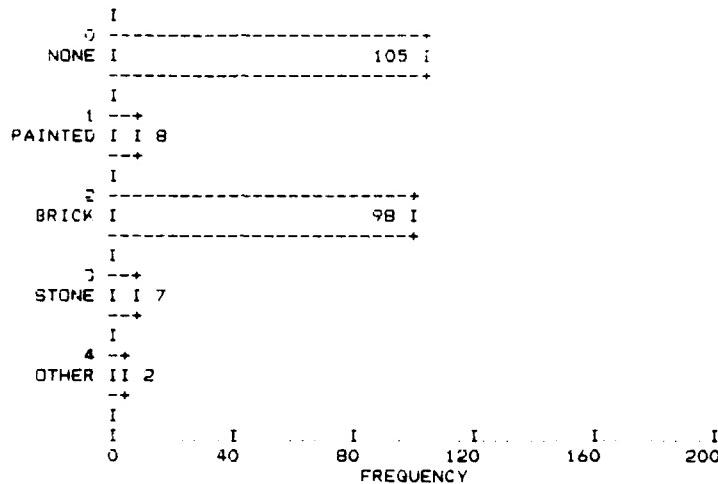
Certain variables in our data set describe the building material exposure and distribution, for example, exposed walls in footprint (EWIF) and average wall height (HT). The corresponding frequency runs for the building description variables are tabulated using the sample size of 220, where buildings were observed in the footprints (Table 3). All other variables not related to the building descriptions use the 461 total cases.

The column headings marked VALUE represent the actual observed value for the variable. Frequency (denoted FREQ) represents the number of cases falling within the category. Percent (PCT) and cumulative percent (CUM PCT) represent the percent of the total falling within the specified category and the running cumulative percent, respectively. The cumulative percent for the last category is always 100.

Analysis was done using the Statistical Package for the Social Sciences (SPSS) software on a VAX-11/785 minicomputer (Nie et al. 1975). A

CMAT CHIMNEY MATERIAL

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NONE	0	105	47.7	47.7	47.7
PAINTED	1	8	3.6	3.6	51.4
BRICK	2	98	44.5	44.5	95.9
STONE	3	7	3.2	3.2	99.1
OTHER	4	2	0.9	0.9	100.0
	TOTAL	220	100.0	100.0	



MEAN	1.059	STD ERR	.072	MEDIAN	1.000
MODE	0.0	STD DEV	1.065	VARIANCE	1.133
KURTOSIS	-1.369	S E KURT	1.991	SKEWNESS	.225
S E SKW	.164	RANGE	4.000	MINIMUM	0.0
MAXIMUM	4.000	SUM	233.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	1.000	66.70	2.000	75.00	2.000
90.00	2.000				

VALID CASES 220 MISSING CASES 0

Figure 3. Sample page of frequency analysis data.

more in-depth discussion of the summary statistics can be found in most elementary applied statistics texts (see Snedecor and Cochran 1980).

DISCUSSION

The frequencies in Appendix B are separated into six sections. The Major Classification Variables section includes the distribution of land use designation (LU), sampling frame (SFRAME), sample point number (SPOINT) and census tract (TRACT) for the 461 total observations.

The land use classification for each sample point (LU) was based on its location within the digital land use data base from the Geographic

Information Retrieval and Analysis System (GIRAS) (Mitchell et al. 1977). The aerial photography used in GIRAS is dated from 1972-74 (Loelkes 1977). The minimum mapping unit for the land cover map is 10 acres (0.04 km^2) for the level II categories 11-17, 23-24, 51-54, 75 and urban occurrences of 76 (Table 2). The minimum mapping unit for the remaining level II categories was 40 acres (0.16 km^2).

About 30% of the sampled footprints in Portland fall within the residential land use class. Another 22% are within the commercial and services land use class, 19% are within the cropland category and 15% are within the transportation land use class. These four land uses make up 86% of the sampled footprints. Cumulative percents show that 81% of the sample points fall within the level I category of urban or builtup land, with the remaining 19% found within the level I category of agriculture.

The sampling frame (SFRAME) shows the distribution of footprints within a given sampling frame. The minimum number of sampled points for a given subcategory is 70, corresponding to the NSUB class. The horizontal bar chart for SFRAME illustrates the uniformity of the sampled distribution and shows that all sampling frames contain the minimum of 70 points.

The census tract (TRACT) variable represents the distribution of sampled footprints within a given tract. The majority (9%) of sample points are within census tract 15, which corresponds to the ULIC sampling frame (Fig. 2 and 4). Another 7% each were found within census tracts (3 and 41) located within UCBD and NRUR respectively. The remaining 77% of the sample points are distributed somewhat uniformly.

Appendix B also includes the available Census Tract Data from the U.S. Bureau of Census, and the land areas within five land use classes derived from the U.S. Geological Survey GIRAS data base (corresponding to the 50 sampled census tracts in Portland). There were eight variables, based on the 1980 census, coded into the Portland data base. Three of the variables included the total population in the census tract (POP), the total number of housing (dwelling) units in a census tract (DU), and the number of dwelling units in one-unit structures (U1). The U.S. Geological Survey combined several of the GIRAS land cover types into five land cover classes that included: the total land area (ALAND), the built residential land use (ABR), the built nonresidential land use (ABNR), the open land containing buildings (AOB) and the open land containing no buildings (AO). All land area values are in millions of square feet.

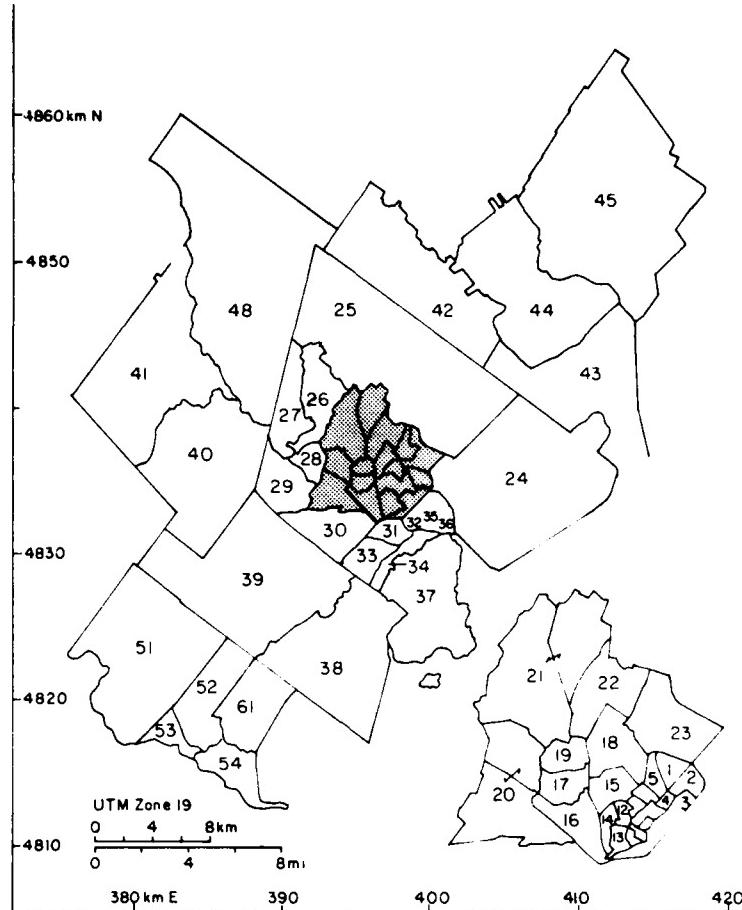


Figure 4. Census tracts for the Portland, Maine, area (after US Census Bureau 1980).

The tract population (POP) variable shows an average population per tract of 3041 persons. The range of population values found within the Portland tracts varies from 34 to over 11,250 people per census tract. The population distribution is skewed slightly to the right, with 75% of the tracts having population values of 3777 people and below.

The total dwelling units (DU) in a given tract varies from 19 to over 4467. The average number of units is 1273, with a similar median value of 1207 units. The average number of dwelling units in one-unit structures (U1) is 593, with a standard deviation of 669 units. Dwelling units range from 1 to 3139 per tract; 90% of the tracts contained 1591 one-unit structures or less.

The remainder of the census tract variables in Appendix B represent the millions of square feet of the total land coverage (ALAND) within the

built residential (ABR), built nonresidential (ABNR), open land with buildings (AOB) and open land without buildings (AO) categories (US Bureau of Census 1980). In comparing the medians of the above five variables, the majority of the land in Portland is in the category of open land without buildings (1.38 million ft²). Overall, the least amount of land was found in the category of area open with buildings, whose median value was 0. The median area of built residential was 693,000 ft² per tract. A median value of 167,000 ft² per tract was categorized as built nonresidential.

The built residential category (ABR) includes the level II urban category, residential (see Table 2). The built nonresidential category (ABNR) includes the urban categories of commercial and services, industrial, transportation, communications and utilities, industrial and commercial complexes, and the mixed urban or buildup land. The open land with buildings category (AOB) includes the other urban or buildup land, and the entire level I agricultural land category. Open without buildings (AO) includes the level I categories of wetlands and barren land.

General Building Descriptions, including wall dimensions, are provided in Appendix B too. Frequencies are tabulated using the 220 cases where buildings were observed. Variables include the approximate age of the structure (AGE), exposed walls in the footprint (EWIF), average wall height (HT), lot size (LOT1 and LOT2), side dimensions (SIDE1 and SIDE2) and the building type (TYPE).

The first variable (AGE) represents the approximate age of the structure using the year 1900 as a base (e.g., 1984 is shown as 84, 1900 as zero, and 1801 as -99). Of the observed structures, 15% were built prior to 1900. The range in building age is 134 years; the mean construction date is 1938; the median construction date is 1944; and the most frequently observed construction date is 1884. The upper third of the building age distribution begins in 1964. The distribution of age is skewed left, reflecting the larger frequency of buildings built prior to 1900.

The exposed walls in footprint (EWIF) is the perimeter (in feet) of the building (or buildings) contained within the footprint. EWIF is recorded for use in calculating the area of building wall surfaces contained within the sampled footprint. Of the 220 structures sighted, 67% show EWIF values of 252 ft and below. The mean EWIF value is 228 ft, with a median value of 180 ft. The percentiles indicate that 10% of the observed structures display EWIF values greater than 407 ft.

The variable indicating average wall height in feet (HT) for a sampled structure is also provided in Appendix B. One quarter of the buildings are 18 ft or less in height. Cumulative percents show that the majority of observed wall heights are below 40 ft (86%). Using 12 ft per story as an average, we see that 11% of the observations are one-story structures, 46% are two-story structures (and below), and 86% are three-story structures (and below). Both mean (29 ft) and median values (25 ft) correspond to an average building size of over two stories. The standard deviation of 19 ft (1.5 stories) reflects the small variance of buildings found in Portland relative to the maximum observed height of 140 ft.

The lot size variables (LOT1 and LOT2) represent the respective length and width dimensions (in feet) of the plot of ground surrounding the sampled structure. The person on the survey team estimated the lot size in the field by using markers, such as fences and the proximity of adjacent buildings. The average lot dimension was 133 ft by 120 ft. The most frequently occurring lot dimension was 100 ft by 50 ft. The percentiles show that 90% of the lots were 260 ft long by 230 ft wide, and below. The overall range of lot dimensions was 570 ft.

The variables SIDE1 and SIDE2 are the respective length and width dimensions of the building in feet. The average building is 85 ft long and 73 ft wide. The median building is somewhat below the average size, with a 52-ft length and 40-ft width. The range of dimensions is 435 ft for SIDE1 and 540 ft for SIDE2. The most frequently occurring dimensions are 30 ft for SIDE1 and 20 ft for SIDE2. Both distributions are skewed to the right (skewness = 2.2 and 3.1) suggesting a greater frequency of smaller-sized buildings.

The building type classification (TYPE) is useful for determining the distribution of individual structures by usage. In the frequency distribution, 241 (52%) of the 461 sampled footprints had no structures (Table 3). Of the footprints containing buildings (220), 44% were found to be one-unit residential structures. The other significant building type was the other commercial buildings category (18%). The remaining building types represented 6% or less of the observations in any given usage class.

The Spatial Areas of Building Materials section follows. It presents the five composite building material classifications recommended by the

Interagency Task Force.* These areas represent square footage of building materials surface potentially exposed to acid deposition. The five composite building materials computed were painted materials (APAIN), mortar-masonry (AMORT), stone materials (ASTONE), galvanized metal (AGALV) and all other materials (AOTHER). From the original building worksheet (Appendix A), the 21 material types were aggregated into the five categories (Table 5).

For the area of painted materials (APAIN), 17% of the sampled structures have no painted wall surfaces. The average exposure of painted

Table 5. The 21 material types grouped into five material types.

APAIN

- Painted wood (excl. stained)
- Painted steel
- Painted aluminum
- Painted masonry
- Painted concrete
- Painted stucco
- Painted other material
- Painted other material (cannot identify)

AMORT

- Bare brick
- Bare block
- Bare field stone

AGALV

- Bare galvanized steel

ASTONE

- Bare marble
- Bare limestone
- Bare granite

AOTHER

- Bare wood (incl. stained)
- Bare concrete
- Bare glass
- Bare vinyl
- Bare other material
- Bare other material (cannot identify)

* Personal communication with F. Lipfert, Brookhaven National Laboratory, 1984.

materials in Portland is 3497 ft² with a median exposure of 1917 ft². The standard deviation of 6398 ft² reflects an average range for painted exposure from a minimum of 0 ft² to a maximum of 73,920 ft². Percentiles suggest that 90% of the painted materials exposure is 7925 ft² and below. The distribution is extremely skewed to the right (skewness = 7.0) and is far more peaked (kurtosis = 69.0) than a normal distribution with similar mean and standard error.

Areas of exposed mortar-masonry materials (AMORT) were observed for 113 structures, indicating that 49% of the footprints with buildings had no mortar-masonry exposure (i.e., of the total 220 sampled footprints, 51% had mortar-masonry walls). The mean mortar-masonry surface area (2766 ft²) is higher than the median exposure (67 ft²), reflecting the skew of the distribution to the right (skewness = 3.4). The range of mortar-masonry surface area is 37,320 ft²; however, the percentile values show that 75% of the structures have exposures ranging from nothing to 1836 ft². Only 10% of the structures had exposures greater than 8535 ft².

The exposure of bare stone materials (ASTONE) is very rare in the Portland sample. Cumulative frequencies show that 96% of the footprints with buildings have no exposed bare stone surfaces. The summary statistics show that buildings with exposed stone surfaces are on the average 184 ft², with a standard deviation of 1824 ft². The median and mode values were 0; the maximum exposed surface area was 21,900 ft².

Very few structures (3%) have bare galvanized steel (AGLAV) exposure. Of the 220 footprints with buildings, 7 structures were composed of some bare galvanized steel. The summary statistics show a median and mode of 0, with a mean exposure of 136 ft². The maximum exposed surface area was 16,250 ft².

The fifth composite material class is the other materials category (AOTHER) that includes all other materials not classified into the above categories; 51% of the structures had some exposed materials falling into the AOTHER category. These surface areas are relatively continuous and nonclustering, with a uniform frequency distribution. The percentile values reflect the uniformity of the distribution for surface wall areas of 804 ft² and below at the 75th percentile. The upper 10th percentile rises sharply to a maximum AOTHER exposure, for an individual building, of 36,000 ft² (the histogram illustrates the sharp rise in values).

Appendix B includes a section called Roof Materials and Roof-Mounted Apparatus Items. The section presents exposed chimney area (CAREA), chimney material (CMAT), exposed roof area (ESAREA), roof material (ERMAT), roof slope (SLOPE) and the roof apparatus items for the observed buildings (ITEM1, APP, RMAT, ITEM2, APPSKY, SKYM, FLMAT, FLLG, APPFL).

The mean surface area of an observed chimney (CAREA) is 37 ft², with a standard deviation of 87 ft². The percentiles indicate that most chimneys are small, usually having less than 24 ft² of exposure (75%). Of the exposed chimneys, the majority are made of brick. The variable CMAT suggests that 85% (98 of the 115 sighted chimneys) were brick.

The exposed surface area of the roof (ESAREA) shows a wide range of values, from 0 ft² to 9999 ft². (One building did not have a roof as it was an old building that had recently been gutted by fire.) The mean surface area observed was 3887 ft², with the most frequently occurring roof size being greater than 9999 ft². The standard deviation was fairly high at 3457 ft². The percentile values indicate that 75% of the roof areas are less than 6410 ft².

The roof material (ERMAT) was predominantly asphalt shingle (55%), followed by tar (30%) and materials that could not be identified (8%). About 30% of the roofs were flat, rather than sloped (i.e., the SLOPE variable).

There were 40 occurrences of vents, flues and stacks (ITEM1); these items were principally (60%) bare aluminum (RMAT).

The field crews sighted six occurrences of skylights in Portland (ITEM2). The skylight framing material (SKYM) was equally divided among painted, bare galvanized, bare aluminum and other material types.

There were 37 occurrences of flashing material (FLMAT). Painted and bare aluminum were the predominant material types (FLMAT) (81% of the 37). The flashing length (FLLG) ranged from 1 ft to over 999 ft, the average being 53 ft. Flashings, however, were sighted on only 17% of the structures sampled.

Rain Gutters, Downspouts and Fences is the last section in Appendix B. Rain gutters (RGMAT) and downspouts (DSPOUT) were found on 90 structures. Most rain gutters and downspouts were painted. The average length of a rain gutter (RGUT) was 54 ft, and for a downspout (DSLENG) the average length was 26 ft. A standard deviation of 116 ft was observed for the rain gutters; the standard deviation was smaller for the downspouts, 46 ft.

There were 44 fences (FENCE) observed within the sampled footprints. The material types were principally bare galvanized chain link. The fence length (FLENG) varied from 5 to greater than 999 ft, and the height (FHT) varied from 2 to 8 ft.

CONCLUSIONS

A building materials sampling program for the Portland, Maine, area was conducted during July and August 1984. The stratified, systematic, unaligned random sampling procedure was applied to generate sample points across the six sampling frame areas. Using this procedure, we surveyed a total of 461 points with a minimum of 70 sample footprints per frame. A diversity of data was taken on building size and surface materials, roof characteristics and roof apparatus, chimneys, gutters, downspouts and fences. The Portland data are summarized according to overall material distribution by structure.

A summary of the composite material classes is provided in Table 6. Notice that 96% and 97% of the sampled structures showed no bare stone and bare galvanized steel exposure. Of the remaining three categories, mortar-masonry exposure and other material exposure were sighted on just under half of the sampled structures (49%). Median exposures suggest that APAINT accounts for the majority of exposure per structure in Portland. As was cited in the New Haven sample (Merry and LaPotin 1985b), the combined AGALV

Table 6. Summary statistics of the five composite material classes.

Composite material class	Mean exposure (ft ²)	Median exposure (ft ²)	Inner quartile (ft ²)	Range (ft ²)	Percent of structures not exhibiting the material class
APAINT	3497	1917	212 to 4503	73920	17
AMORT	2766	67	0 to 456	37320	49
AGALV	136	0	0 to 0	16250	97
ASTONE	184	0	0 to 0	21900	96
AOTHER	1115	29	0 to 804	36000	49

and ASTONE categories are infrequently observed and should be reclassified to more adequately represent the exposure level by material class.

LITERATURE CITED

Anderson, J.R., E.E. Hardy, J.T. Roach and R.E. Witmer (1976) A land use and land cover classification system for use with remote sensor data. U.S. Geological Survey, Professional Paper 964.

Interagency Task Force on Acid Precipitation (1984) Operating Research Plan, vol. I, Research Framework. Washington, D.C: U.S. Government Printing Office.

Ling, H.S. and G.H. Rosenfield (1980) A computer program for use in testing the accuracy of land use and land cover maps. USGS Internal Report.

Loelkes, G.L., Jr. (1977) Specifications for land use and land cover and associated maps. U.S. Geological Survey, Open-file Report 77-555.

Merry, C.J. and P.J. LaPotin (1985a) An analysis of the Revere, Quincy and Stamford structure data bases for predicting building materials distribution. U.S. Army Cold Regions Research and Engineering Laboratory, Special Report 85-7.

Merry, C.J. and P.J. LaPotin (1985b) A description of the building materials data base for New Haven, Connecticut. U.S. Army Cold Regions Research and Engineering Laboratory, Special Report 85-19.

Merry, C.J. and H.L. McKim (1984) Method of acquiring structural materials data for use in the EPA acid rain deposition program (abstract). Peer Review Meeting for Materials Effects Task Group G and Assessments and Policy Analysis Task Group I, Research summaries, 14-17 February, Burlington, Vermont. Raleigh: North Carolina State University, Acid Deposition Program.

Mitchell, W.B., S.C. Guptill, K.E. Anderson, R.G. Fegeas and C.A. Hallam (1977) GIRAS: A geographic information retrieval and analysis system for handling land use and land cover data. U.S. Geological Survey, Professional Paper 1059.

Nie, N.H., C.H. Hull, J.G. Jenkins, K. Steinbrenner and D.H. Bent (1975) SPSS, Statistical Package for the Social Sciences, 2nd ed. New York: McGraw-Hill Book Company.

Rosenfield, G.H. (1984) Spatial sample design for building materials inventory for use with an acid rain damage survey (R. Schmidt and H. Smolin, Ed.). The Changing Role of Computers in Public Agencies. 22nd Annual Conference, The Urban and Regional Information Systems Association, 12-15 August, Seattle, Washington, pp. 502-512.

Snedecor, G.R. and W.G. Cochran (1980) Statistical Methods. Ames: Iowa State University Press.

U.S. Bureau of Census (1980) Census of population and housing: Census tracts Portland, Maine, SMSA.

APPENDIX A. DATA

Listing of UTM coordinates for each sample point in Portland, Maine

	<u>UTM East</u>	<u>UTM North</u>		<u>UTM East</u>	<u>UTM North</u>	
1	399460.00	4834800.00		74	398410.00	4834140.00
2	399350.00	4834660.00		75	397970.00	4834110.00
3	399190.00	4834420.00		76	398180.00	4834090.00
4	399340.00	4834240.00		77	398100.00	4834080.00
5	399120.00	4834160.00		78	398730.00	4834050.00
6	398940.00	4834150.00		79	397840.00	4834030.00
7	398810.00	4834040.00		80	397990.00	4834030.00
8	398870.00	4833980.00		81	398230.00	4833980.00
9	398920.00	4833890.00		82	398150.00	4833940.00
10	398860.00	4833870.00		83	397950.00	4833900.00
11	398660.00	4833790.00		84	398070.00	4833870.00
12	398760.00	4833750.00		85	399110.00	4834950.00
13	398590.00	4833670.00		86	399210.00	4834830.00
14	398680.00	4833660.00		87	398940.00	4834820.00
15	398730.00	4833540.00		88	399030.00	4834790.00
16	398590.00	4833490.00		89	398780.00	4834670.00
17	398530.00	4833420.00		90	399040.00	4834610.00
18	398370.00	4833250.00		91	398810.00	4834570.00
19	398130.00	4833130.00		92	399130.00	4834520.00
20	398040.00	4833090.00		93	398840.00	4834460.00
21	398250.00	4833090.00		94	398580.00	4836000.00
22	397930.00	4833010.00		95	398600.00	4835850.00
23	397760.00	4832970.00		96	398610.00	4835780.00
24	398000.00	4832940.00		97	398650.00	4835650.00
25	397640.00	4832930.00		98	398370.00	4835570.00
26	397510.00	4832910.00		99	398640.00	4835540.00
27	397580.00	4832910.00	100	398470.00	4835460.00	
28	397850.00	4832900.00	101	398510.00	4835430.00	
29	397720.00	4832890.00	102	398650.00	4835360.00	
30	397970.00	4832860.00	103	398430.00	4835350.00	
31	397380.00	4832800.00	104	398890.30	4835320.30	
32	396920.00	4832750.00	105	398880.00	4835190.00	
33	396870.00	4832690.00	106	398520.00	4835150.00	
34	398340.00	4835220.00	107	398600.00	4835140.00	
35	398190.00	4835170.00	108	398850.00	4835070.00	
36	398370.00	4835170.00	109	398700.00	4835060.00	
37	398130.00	4835050.00	110	398650.00	4833970.00	
38	398000.00	4835040.00	111	398250.00	4833950.00	
39	398260.00	4835020.00	112	398290.00	4833950.00	
40	397880.00	4834980.00	113	398470.00	4833820.00	
41	398530.00	4834970.00	114	398130.00	4833710.00	
42	398360.00	4834940.00	115	398580.00	4833710.00	
43	398130.00	4834920.00	116	398280.00	4833700.00	
44	398230.00	4834910.00	117	398370.00	4833610.00	
45	397990.00	4834900.00	118	397940.00	4834780.00	
46	398500.00	4834860.00	119	398120.00	4834590.00	
47	398200.00	4834850.00	120	397850.00	4834570.00	
48	398660.00	4834820.00	121	397990.00	4834520.00	
49	398370.30	4834730.30	122	398110.00	4834490.00	
50	398380.30	4834730.30	123	397830.00	4834430.00	
51	398390.30	4834770.30	124	397840.00	4834300.00	
52	398630.30	4834720.30	125	397820.00	4834160.00	
53	398330.30	4834710.30	126	396750.00	4835580.00	
54	398350.30	4834690.00	127	396930.00	4835520.00	
55	398520.00	4834690.00	128	397020.00	4835490.00	
56	398370.00	4834540.00	129	396690.00	4835400.00	
57	398510.00	4834510.00	130	397110.00	4835380.00	
58	398380.00	4834460.00	131	396620.00	4835370.00	
59	398580.00	4834460.00	132	396830.00	4835350.00	
60	398340.00	4834410.00	133	396370.00	4835310.30	
61	398730.00	4834410.00	134	397470.00	4835270.00	
62	398750.00	4834340.00	135	397250.00	4835260.00	
63	398890.00	4834330.00	136	396980.00	4835240.00	
64	398460.00	4834300.00	137	397320.00	4835210.00	
65	398750.30	4834290.00	138	397510.00	4835200.00	
66	398210.00	4834290.00	139	397110.00	4835180.00	
67	398680.00	4834260.00	140	396610.00	4835150.00	
68	398590.00	4834250.00	141	396710.00	4835110.00	
69	398270.00	4834220.00	142	397690.00	4835110.00	
70	398280.00	4834160.00	143	396440.00	4835090.00	
71	398520.00	4834160.00	144	395640.00	4835070.00	
72	398800.00	4834160.00	145	397860.00	4835070.00	
73	398630.00	4834150.00	146	397080.00	4835050.00	

	<u>UTM East</u>	<u>UTM North</u>		<u>UTM East</u>	<u>UTM North</u>	
147.	397220.00	4835030.00		196.	397730.00	4834550.00
148.	396630.00	4835310.00		197.	397250.00	4834420.00
149.	397430.00	4834990.00		198.	397460.00	4834400.00
150.	396340.00	4834950.00		199.	397460.00	4834310.00
151.	397630.00	4834940.00		200.	397480.00	4834090.00
152.	396880.00	4834900.00		201.	397670.00	4833880.00
153.	396410.00	4834890.00		202.	397360.00	4833860.00
154.	397460.00	4834880.00		203.	397800.00	4833790.00
155.	396580.00	4834850.00		204.	397700.00	4833760.00
156.	397250.00	4834850.00		205.	397900.00	4833700.00
157.	397220.00	4834870.00		206.	398190.00	4833510.00
158.	397640.00	4834820.00		207.	397930.00	4833450.00
159.	397740.00	4834770.00		208.	398140.00	4833430.00
160.	396900.00	4834760.00		209.	398250.00	4833280.00
161.	397120.00	4834720.00		210.	397600.00	4833380.00
162.	396860.00	4834610.00		211.	397820.00	4833230.00
163.	396590.00	4834570.00		212.	397800.00	4833210.00
164.	396780.00	4834540.00		213.	398000.00	4833170.00
165.	396730.00	4834510.00		214.	397470.00	4833790.00
166.	396520.00	4834440.00		215.	397540.00	4833730.00
167.	398900.00	4836070.00		216.	397180.00	4833710.00
168.	398670.00	4836050.00		217.	397210.00	4833630.00
169.	399120.00	4836050.00		218.	397440.00	4833530.00
170.	399220.00	4835970.00		219.	397380.00	4833520.00
171.	398770.00	4835870.00		220.	397320.00	4833520.00
172.	398990.00	4835870.00		221.	397460.00	4833330.00
173.	398930.00	4835860.00		222.	397320.00	4833290.00
174.	399530.00	4835780.00		223.	397110.00	4833260.00
175.	399440.00	4835770.00		224.	397610.00	4833200.00
176.	399150.00	4835730.00		225.	397270.00	4833150.00
177.	398940.00	4835710.00		226.	397590.00	4833100.00
178.	399250.00	4835650.00		227.	397570.00	4833080.00
179.	399020.00	4835550.00		228.	397170.00	4833290.00
180.	399480.00	4835550.00		229.	397010.00	4834410.00
181.	399263.00	4835480.00		230.	397150.00	4834300.00
182.	399260.00	4835310.00		231.	396870.00	4834270.00
183.	399100.00	4835210.00		232.	397220.00	4834250.00
184.	399680.00	4835620.00		233.	396970.00	4834130.00
185.	399810.00	4835490.00		234.	397200.00	4834120.00
186.	399772.00	4835470.00		235.	396650.00	4834080.00
187.	399570.00	4835310.00		236.	397820.00	4834030.00
188.	399860.00	4835230.00		237.	397050.00	4833930.00
189.	399670.00	4835190.00		238.	396820.00	4833860.00
190.	399790.00	4835180.00		239.	396980.00	4833750.00
191.	399690.00	4835090.00		240.	396920.00	4833410.00
192.	399420.00	4835060.00		241.	396980.00	4833250.00
193.	399320.00	4835050.00		242.	397010.00	4833290.00
194.	399410.00	4834910.00		243.	396890.00	4833050.00
195.	397480.00	4834600.00		244.	396920.00	4832940.00

	<u>UTM East</u>	<u>UTM North</u>	CENS	LU	<u>UTM East</u>	<u>UTM North</u>	CENS	LU	
1.	396220.	4835820.	16	12	26.	393270.	4837520.	21	14
2.	395820.	4834270.	16	12	27.	398380.	4839160.	22	11
3.	396130.	4834210.	16	12	28.	396920.	4839100.	22	11
4.	396270.	4835570.	17	11	29.	396730.	4838860.	22	11
5.	395570.	4835460.	17	11	30.	397040.	4838320.	22	11
6.	394740.	4835440.	17	11	31.	396620.	4838100.	22	11
7.	394850.	4834690.	17	11	32.	396080.	4837690.	22	13
8.	397230.	4837290.	18	11	33.	395930.	4837220.	22	12
9.	396640.	4836720.	18	11	34.	398630.	4838360.	23	14
10.	395470.	4836130.	19	12	35.	398360.	4838270.	23	12
11.	393970.	4836550.	20	11	36.	398470.	4837430.	23	13
12.	394590.	4836250.	20	17	37.	398290.	4836830.	23	11
13.	392730.	4835630.	20	14	38.	390890.	4837260.	28	17
14.	392680.	4834880.	20	14	39.	390630.	4836790.	28	11
15.	393970.	4834670.	20	11	40.	390910.	4836700.	28	11
16.	393950.	4834350.	20	11	41.	392640.	4836580.	28	12
17.	393330.	4832590.	20	17	42.	392990.	4832010.	30	14
18.	394620.	4832540.	20	14	43.	394610.	4832720.	30	14
19.	394920.	4831710.	21	13	44.	394200.	4832600.	30	12
20.	394280.	4839830.	21	14	45.	396140.	4832410.	30	13
21.	395220.	4838160.	21	11	46.	392100.	4832170.	30	14
22.	392600.	4837350.	21	21	47.	395290.	4832150.	30	14
23.	394740.	4837220.	21	11	48.	394320.	4832140.	30	12
24.	394360.	4837610.	21	13	49.	393920.	4831770.	30	12
25.	394400.	4837510.	21	12	50.	394940.	4831400.	30	11

<u>UTM East</u>	<u>UTM North</u>	<u>CENS</u>	<u>LU</u>	<u>UTM East</u>	<u>UTM North</u>	<u>CENS</u>	<u>LU</u>
51. 395350.	4831250.	30	11	63. 400170.	4833900.	35	12
52. 394820.	4830640.	30	11	64. 400370.	4833770.	35	12
53. 394740.	4831530.	31	11	65. 400170.	4832000.	36	16
54. 397510.	4831380.	31	11	66. 400790.	4831900.	36	11
55. 400180.	4830700.	32	11	67. 382140.	4819240.	53	17
56. 392790.	4831240.	32	11	68. 381320.	4818510.	53	11
57. 395490.	4831760.	33	12	69. 381910.	4818120.	53	11
58. 395210.	4830750.	33	12	70. 382260.	4817990.	53	11
59. 396340.	4830470.	33	12	71. 382700.	4817590.	53	11
60. 397510.	4830380.	33	12	72. 383520.	4817020.	53	12
61. 400180.	4831460.	34	11	73. 383460.	4816700.	53	11
62. 398970.	4831150.	34	11	74. 382830.	4816550.	53	13

<u>UTM East</u>	<u>UTM North</u>	<u>UTM East</u>	<u>UTM North</u>
245. 395120.00	4844910.00	280. 385300.00	4833770.00
246. 394733.00	4842751.00	281. 396200.00	4852530.00
247. 393793.00	4842069.00	282. 394431.00	4851640.00
248. 395310.00	4842131.00	283. 394579.00	4850960.00
249. 396650.00	4841889.00	284. 394990.00	4850820.00
250. 397720.00	4841610.00	285. 399300.00	4849611.00
251. 397140.00	4839960.00	286. 400229.00	4848190.00
252. 392410.00	4841980.00	287. 398150.00	4847080.00
253. 392610.00	4841011.00	288. 403700.00	4847010.00
254. 398440.00	4837730.00	289. 404370.00	4853980.00
255. 390660.00	4840079.00	290. 404000.00	4852681.00
256. 389321.00	4835591.00	291. 406130.00	4850140.00
257. 388390.00	4834630.00	292. 404930.00	4849780.00
258. 398990.00	4828810.00	293. 405770.00	4848470.00
259. 399740.00	4826439.00	294. 410500.00	4859049.00
260. 401120.00	4824020.00	295. 414450.00	4858409.00
261. 395399.00	4827349.00	296. 411490.00	4857419.00
262. 391650.00	4825090.00	297. 412830.00	4854259.00
263. 396370.00	4824960.00	298. 408240.00	4850741.00
264. 396810.00	4824250.00	299. 381870.00	4856149.00
265. 386250.00	4830999.00	300. 385900.00	4855000.00
266. 389399.00	4830750.00	301. 386570.00	4854419.00
267. 381439.00	4830361.00	302. 385020.00	4854370.00
268. 390390.00	4829671.00	303. 385540.00	4852510.00
269. 394250.00	4828949.00	304. 387130.00	4851299.00
270. 387570.00	4828600.00	305. 388780.00	4847871.00
271. 386699.00	4825689.00	306. 389030.00	4847219.00
272. 384859.00	4840429.00	307. 386350.00	4845761.00
273. 386230.00	4839540.00	308. 386730.00	4842410.00
274. 383420.00	4838251.00	309. 387961.00	4841960.00
275. 387120.00	4837819.00	310. 385860.00	48223420.00
276. 382210.00	4837440.00	311. 386130.00	4822280.00
277. 384410.00	4837130.00	312. 382450.00	4819460.00
278. 388090.00	4836940.00	313. 385210.00	4818641.00
279. 386370.00	4834810.00	314. 388110.00	4818821.00

<u>UTM East</u>	<u>UTM North</u>	<u>CENS</u>	<u>LU</u>	<u>UTM East</u>	<u>UTM North</u>	<u>CENS</u>	<u>LU</u>
1. 383160.	4858269.	41	41	19. 383840.	4840700.	41	21
2. 342630.	4849639.	41	21	20. 379760.	4839990.	41	21
3. 382970.	4847299.	41	21	21. 380811.	4839780.	41	21
4. 383950.	4844750.	41	21	22. 377270.	4839541.	41	21
5. 382040.	4844551.	41	21	23. 380880.	4839419.	41	21
6. 379670.	4844379.	41	21	24. 379530.	4839180.	41	21
7. 380110.	4844310.	41	11	25. 378440.	4839080.	41	21
8. 382079.	4843510.	41	21	26. 378600.	4837840.	41	21
9. 379420.	4843501.	41	21	27. 380099.	4837570.	41	21
10. 383861.	4843240.	41	24	28. 380280.	4837420.	41	21
11. 385150.	4843020.	41	14	29. 413630.	4843520.	43	11
12. 380030.	4842930.	41	21	30. 429421.	4840770.	43	11
13. 381140.	4842931.	41	21	31. 400590.	4858290.	46	21
14. 384810.	4842700.	41	11	32. 399820.	4857970.	46	12
15. 376660.	4842190.	41	11	33. 402430.	4857940.	46	11
16. 383490.	4841262.	41	21	34. 402040.	4857760.	46	21
17. 381260.	4841980.	41	21	35. 402370.	4856720.	46	21
18. 381450.	4840860.	41	21	36. 404100.	4856670.	46	11

<u>UTM East</u>	<u>UTM North</u>	<u>CENS</u>	<u>LU</u>	<u>UTM East</u>	<u>UTM North</u>	<u>CENS</u>	<u>LU</u>
37. 485471.	4856613.	46	21	55. 3794843.	4824937.	51	21
38. 4857481.	4856499.	46	21	56. 382313.	4824630.	51	21
39. 484431.	4856230.	46	21	57. 381253.	4824610.	51	21
40. 480223.	4855339.	46	21	58. 385323.	4824439.	51	21
41. 401130.	4855040.	46	21	59. 379610.	4824390.	51	21
42. 482650.	4854900.	46	21	60. 383220.	4823450.	51	21
43. 398258.	4854710.	46	21	61. 383750.	4823011.	51	21
44. 398870.	4854270.	46	11	62. 378420.	4822469.	51	21
45. 482963.	4854270.	46	21	63. 390790.	4821710.	51	21
46. 480410.	4853771.	46	21	64. 376900.	4820120.	51	21
47. 480248.	4853330.	46	21	65. 379040.	4819371.	51	21
48. 482858.	4853211.	46	21	66. 376930.	4819199.	51	21
49. 480899.	4852690.	46	21	67. 379870.	4817610.	51	21
50. 480380.	4852330.	46	11	68. 378520.	4817570.	51	21
51. 401024.	4851870.	46	21	69. 385240.	4815940.	54	11
52. 481471.	4850810.	46	21	70. 387840.	4815471.	54	11
53. 323130.	4826211.	51	21	71. 385539.	4815620.	54	11
54. 283371.	4826010.	51	21				

Building worksheet used in the Portland field sampling program

Revised 3 August 1984

BUILDING INVENTORY WORKSHEET

Tract/MCD¹⁻³

Sampling frame⁴

Sampling point number⁵⁻⁷

USGS land cover type⁸⁻⁹

Type of structure (circle one)¹⁰⁻¹¹

Residential building:

Housing unit:

1 unit detached¹

1 unit attached²

2 units³

3 & 4 units⁴

5-9 units⁵

10-19 units⁶

20-49 units⁷

50 or more units⁸

Nonresidential buildings:

Office building¹⁰

Other commercial¹¹

Industrial¹²

Hospital or institutional¹³

Religious¹⁴

Educational¹⁵

Other nonresidential¹⁶

Farm (nonresidential)¹⁷

Other (identify structure¹⁸)¹⁸

Nonhousekeeping (hotels,
motels, dormitories,
fraternity, nursing homes)⁹

Cannot identify¹⁹

Sketch of Building

(yr) Approximate age of building¹²⁻¹⁴
ft, Wall height¹⁵⁻¹⁷
ft, Side 1 of building¹⁸⁻²⁰
ft, Side 2 of building²¹⁻²³
ft, Lot size, side 1²⁴⁻²⁶
ft, Lot size, side 2²⁷⁻²⁹
ft, Exposed walls in footprint³⁰⁻³²

Photo ID _____

Street address _____

WALLS

Percent(%) of wall area of
each horizontal section

Found- ation	1st story	All stories above 1st
-----------------	--------------	--------------------------

PAINTED WALLS

1. Wood (excl. stained) _____
2. Steel _____
3. Aluminum _____
4. Masonry _____
5. Concrete _____
6. Stucco _____
7. Other material
(identify material _____)
8. Cannot identify _____

BARE WALLS

9. Brick _____
10. Block _____
11. Field stone _____
12. Concrete _____
13. Marble _____
14. Limestone _____
15. Granite _____
16. Galvanized steel _____
17. Wood (incl. stained) _____
18. Glass _____
19. Vinyl _____
20. Other material
(identify material _____)
21. Cannot identify _____

TOTAL	100	100	100
-------	-----	-----	-----

ROOF

80 Configuration (circle one): (0) Sloped or (1) flat

44-47 ft², Area of exposed surface

48 Exposed roof material (circle one): (0) tar, (1) asphalt shingle, (2) wood, (3) painted metal, (4) bare galvanized, (5) tile, (6) slate, (7) copper, (8) other (identify material _____), (9) cannot identify.

49 Vents, Flues
stacks (1)

50 Material (circle one): (1) painted, 51-51 Number
(2) bare galvanized, (3) bare aluminum, of item
(4) other (identify material _____),
(9) cannot identify

53 Skylights (2)

54 Framing material only (circle one): 55-56 Number
(1) painted (2) bare galvanized, (3) bare of item
aluminum, (4) other (identify material
_____), (9) cannot identify

57 Flashing (3)

58 Material (circle one): (1) painted 59-61
(2) bare galvanized, (3) bare aluminum, ft
(4) other (identify material _____),
(9) cannot identify

CHIMNEYS

62-65 ft², Exposed surface area above roof

66 Material (circle one): (1) painted, (2) brick, (3) stone, (4) other
(identify material _____), (9) cannot identify

RAIN GUTTERS

67-69 ft, Horizontal runs

70 Material (circle one): (1) bare galvanized, (2) vinyl, (3) painted,
(4) copper, (5) other (identify material _____), (9) cannot identify.

DOWNSPOUTS

71 Material (circle one): (1) bare galvanized, (2) vinyl, (3) painted,
(4) copper, (5) other (identify material _____), (9)
cannot identify

72-74 ft, sum of heights for all downspouts

FENCES

75 Material (circle one): (1) bare galvanized chain link, (2) bare
galvanized wire mesh, (3) painted, (4) brick, (5) block, (6) field
stone, (7) unpainted wood, (8) other (identify material _____),
(9) cannot identify

76-78 ft, Length

79-80 ft, Height

Procedures used to check the Portland data

The data were checked several ways to ensure that the data base was correct. A major check of the material type percentages and the EWIF value was done before printing a frequency run of the entire data set.

The percentage check done was to sum the percentage of material types for the three stories of the building. We needed to ensure that the sum of all material types was 100%. Also, during the same computer run, we checked to see that every building had a foundation. (In some cases, the field team had not recorded a foundation.) For these cases, the photo of the building was examined to determine the material type of the foundation. We assumed 12 ft for the first story component of the building. In addition, during the same computer run, we would print out cases where the building height was greater than 14 ft (assuming 2 ft for the foundation and 12 ft for the first story) and there were no percentages recorded for the second and above stories.

The EWIF value was also checked against the lot size and the building side dimensions. A printout of these values was obtained for every building. We assumed that the building sides were the square root of the exposed roof area and would check to make sure that the EWIF was not larger than the building sides. There was also a check to ensure that the building was not larger than the lot size dimensions.

Several hand calculations were done for the building surface areas and compared against the computer-calculated surface areas. These values had to be consistent for different types of materials for a given building. The frequency runs were checked for a number of items. The number of downspouts had to be the same as the number of rain gutters.

The empty footprints were noted for each sampling frame and verified against the number of buildings expected for each sampling frame.

The tally of land use and census tract numbers also had to be correct for each sampling frame. The number of roof areas had to equal the number of buildings.

The number of cases had to be the same for a given accessory. For example, the number of material types and the surface area values had to be the same for the variables of roofs, fences, downspouts, rain gutters and roof-mounted apparatus. Although not every building had all these compo-

nents, if the value was recorded, then each material type had to have a corresponding surface area.

Strange or unexpected numbers for all the variables encountered during editing of the data base were always doublechecked against the building worksheets. For example, the EWIF values were always fairly even in value or divisible by 5. Any unusual numbers or large numbers were doublechecked and verified during the editing process, not only for the EWIF, but for the other variables as well.

APPENDIX B. RESULTS OF THE FREQUENCY ANALYSIS

Description of the Portland data variables

<u>Variable name</u>	<u>Brief description</u>	<u>Detailed description</u>
LU	Land use	U.S. Geological Survey land use classification, where: 11 = residential, 12 = commercial and services, 13 = industrial, 14 = transportation, communications and utilities, 15 = industrial and commercial complexes, 16 = mixed urban or builtup land, 17 = other urban and or builtup land, 21 = cropland and pasture, 22 = orchard, groves, vineyards, nurseries and ornamental agricultural areas, 23 = confined feeding operations, 24 = other agricultural land, 31 = herbaceous rangeland, 32 = shrub and brush rangeland, 33 = mixed rangeland, 41 = deciduous forestland, 42 = evergreen forestland, 43 = mixed forestland, 51 = streams and canals, 52 = lakes, 53 = reservoirs, 54 = bays and estuaries, 61 = forested wetland, 62 = nonforested wetland, 71 = dry salt flats, 72 = beaches, 73 = sandy areas other than beaches, 74 = bare exposed rock, 75 = strip mines, quarries, and gravel pits, 76 = transitional areas, 77 = mixed barren land.
SFRAME	Sampling frame	Sampling frame, where:
		1 = UCBD 2 = ULIC 3 = UMF'R 4 = USFR 5 = NSUB 6 = NRUR
SPOINT	Sample point number	Sampling point number within sampling frame.
TRACT	Census tract	Census tract number, see Figure 4.
POP	Tract population	Total population in census tract.
DU	Total dwelling units in tract	Total number of housing units in census tract.
U1	One-unit structures in tract	Number of dwelling units in one-unit structures in census tract.
ALAND	Area of land coverage	Total land area of census tract (millions of ft ²).
ABR	Area of built residential	Land area of census tract in built residential (millions of ft ²).
ABNR	Area of built nonresidential	Land area of census tract in built nonresidential (millions of ft ²).
AOB	Area, open land with buildings	Land area of census tract in open with buildings (millions of ft ²).

AO	Area of open land without buildings	Land area of census tract in open without buildings (millions of ft ²).
AGE	Approx. age of structure	Approximate age of the building. 1900 is the base year (year 0). To obtain age, add the value of 1900. Ages less than 1900 are coded as negative values.
EWIF	Exposed wall in footprint	Exposed walls (perimeter of the building) within a given footprint (ft).
HT	Average wall height	Average building height (ft).
LOT1	Lot size, side 1	Lot size associated with sampling point, side 1 (ft).
LOT2	Lot size, side 2	Lot size associated with sampling point, side 2 (ft).
SIDE1	Side 1 of bldg.	Side dimension of the building (ft).
SIDE2	Side 2 of bldg.	Side dimension of the building (ft).
TYPE	Structure type-usage	Value label assigned to structure, where: 0 = no building, 1 = 1 housing unit detached, 2 = 1 housing unit attached, 3 = 2 housing units, 4 = 3 to 4 housing units, 5 = 5 to 9 housing units, 6 = 10 to 19 housing units, 7 = 20 to 49 housing units, 8 = 50 or more housing units, 9 = nonhousekeeping (i.e., hotels, motels, dormitories, fraternity and sorority houses, nursing homes and similar facilities), 10 = office buildings, 11 = other commercial buildings, 12 = industrial buildings, 13 = hospital or institutional buildings, 14 = religious building, 15 = educational building, 16 = other nonresidential buildings, 17 = farm (nonresidential), 18 = other buildings, 19 = cannot identify building.
APAINT	Area of painted surface	The total surface area (ft ²) of a building having painted materials.
AMORT	Area of mortar-masonry surface	The total surface area (ft ²) of a building having mortar and masonry materials.
ASTONE	Area of stone surface	The total surface area (ft ²) of a building having stone materials.
AGALV	Area of galvanized surface	The total surface area (ft ²) of a building having galvanized materials.
AOTHER	Area of other materials	The total surface area (ft ²) of a building having all other materials.
CAREA	Exposed chimney area	Exposed surface area of chimney above roof (ft ²).
CMAT	Chimney material	Chimney material type, where: 0 = no chimney observed, 1 = painted, 2 = brick, 3 = stone, 4 = other chimney material, and 9 = cannot identify chimney material.
ESAREA	Area of exposed roof	Exposed roof area of building (ft ²).
ERMAT	Roof material type	Exposed roof material, where: 0 = tar, 1 = asphalt shingle, 2 = wood, 3 = painted metal, 4 = bare galvanized, 5 = tile, 6 = slate, 7 = copper, 8 = other roof material, 9 = cannot identify roof material.

SLOPE	Indicator: roof slope	Roof configuration: 1 = sloped, 2 = flat.
ITEM1	Number of roof apparatus items	Number of items of roof-mounted apparatus (vents, flues and stacks).
APP	Indicator: roof apparatus	Presence of roof-mounted apparatus (vents, flues, and stacks) where 1 = observed and 0 = not observed.
RMAT	Roof apparatus material	Material type of the roof-mounted apparatus (vents, flues and stacks), where: 1 = painted, 2 = bare galvanized, 3 = bare aluminum, 4 = other roof-mounted apparatus material, 9 = cannot identify roof-mounted apparatus material.
ITEM2	Number of sky- lights	Number of skylights observed.
APP SKY	Skylights	Presence of skylights, where: 1 = observed and 0 = not observed.
SKYM	Framing material of skylights	Framing material type of skylights, where: 1 = painted, 2 = bare galvanized, 3 = bare aluminum, 4 = other material type, and 9 = cannot identify material type.
FLMAT	Material type of flashing	Material type of flashing, where: 1 = painted, 2 = bare galvanized, 3 = bare aluminum, 4 = other material type, and 9 = cannot identify.
FLLG	Length of flashing	Length of flashing (ft).
APPFL	Flashing	Presence of flashing, where: 1 = observed, 0 = not observed.
RGMAT	Rain gutter material	Rain gutter material type, where: 0 = no chimney observed, 1 = bare galvanized, 2 = vinyl, 3 = painted, 4 = copper, 5 = other rain gutter material, and 9 = cannot identify rain gutter material.
DSPOUT	Material of downspout	Material type of downspouts, where: 0 = no downspout observed, 1 = bare galvanized, 2 = vinyl, 3 = painted, 4 = copper, 5 = other downspout material, and 9 = cannot identify downspout material.
RGUT	Rain gutter length	Horizontal length of rain gutters (ft).
DSLENG	Downspout length	Length of downspout (ft).
FENCE	Fence type	Material type of fences, where: 0 = no fences observed, 1 = bare galvanized chain link, 2 = bare galvanized wire mesh, 3 = painted fence, 4 = brick, 5 = block, 6 = field stone, 7 = unpainted wood, 8 = other material type, and 9 = cannot identify fence material.
FLENG	Fence length	Length of fence (ft).
FHT	Fence height	Height of fence (ft).

Major classification variables

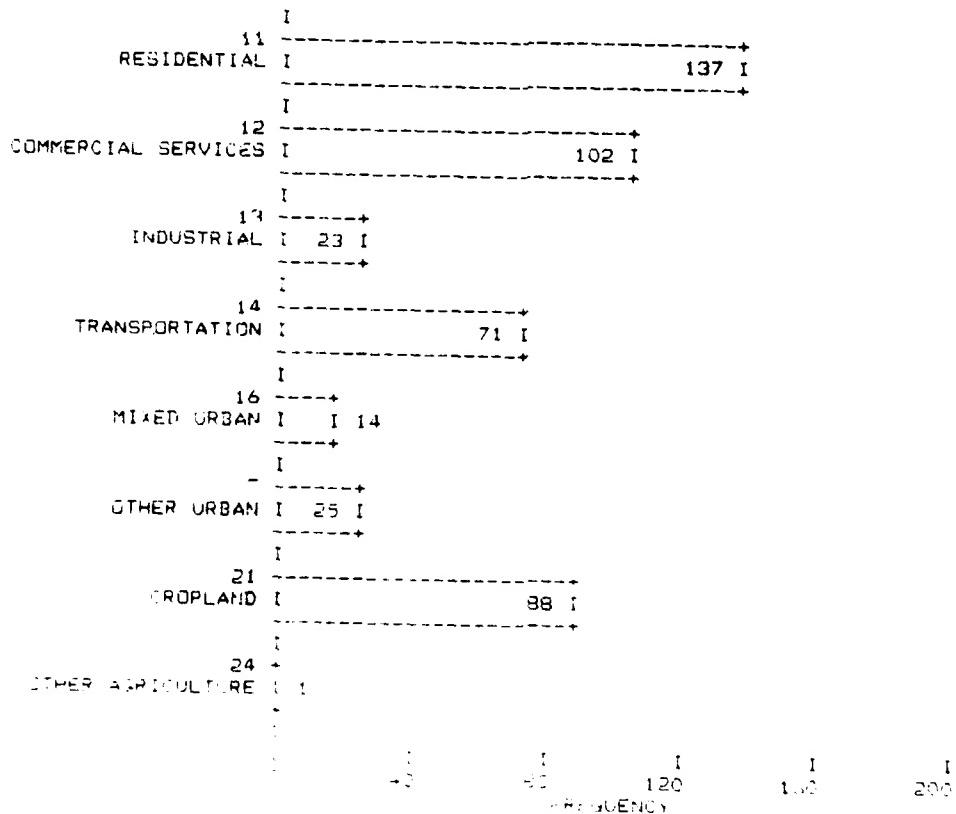
LU LAND USE DESIGNATION

MEAN	14.197	STD ERR	.173	MEDIAN	12.000
MODE	11.000	STD DEV	3.712	VARIANCE	13.781
KURTOSIS	-5.13	S E KURT	1.996	SKEWNESS	1.010
S E SKEW	1.14	RANGE	13.000	MINIMUM	11.000
MAXIMUM	24.000	SUM	6545.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	11.000	25.00	11.000	33.30	12.000
50.00	12.000	60.70	14.000	75.00	16.000
90.00	21.000				

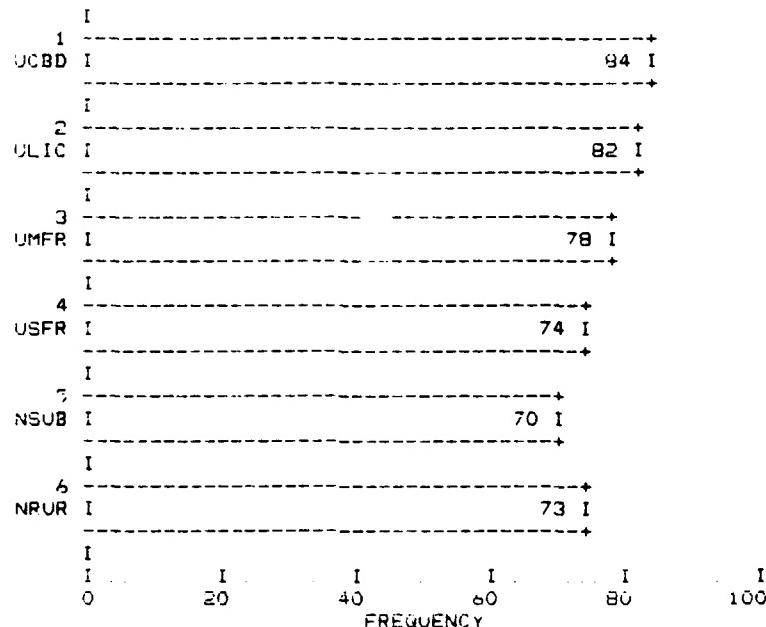
VALID CASES 461 MISSING CASES 0

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
RESIDENTIAL	11	137	29.7	29.7	29.7
COMMERCIAL SERVICES	12	102	22.1	22.1	51.8
INDUSTRIAL	13	23	5.0	5.0	56.8
TRANSPORTATION	14	71	15.4	15.4	72.2
MIXED URBAN	16	14	3.0	3.0	75.3
OTHER URBAN	17	25	5.4	5.4	80.7
CROPLAND	21	88	19.1	19.1	99.8
OTHER AGRICULTURE	24	1	.2	.2	100.0
		-----	-----	-----	-----
TOTAL	461	100.0	100.0		



172315Z JUN 94 EDITION 1

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
UCBD	1	84	18.2	18.2	18.2
ULIC	2	82	17.8	17.8	36.0
UMFR	3	78	16.9	16.9	52.9
USFR	4	74	16.1	16.1	69.0
NSUB	5	70	15.2	15.2	84.2
NRUR	6	73	15.8	15.8	100.0
		-----	-----	-----	-----
	TOTAL	461	100.0	100.0	



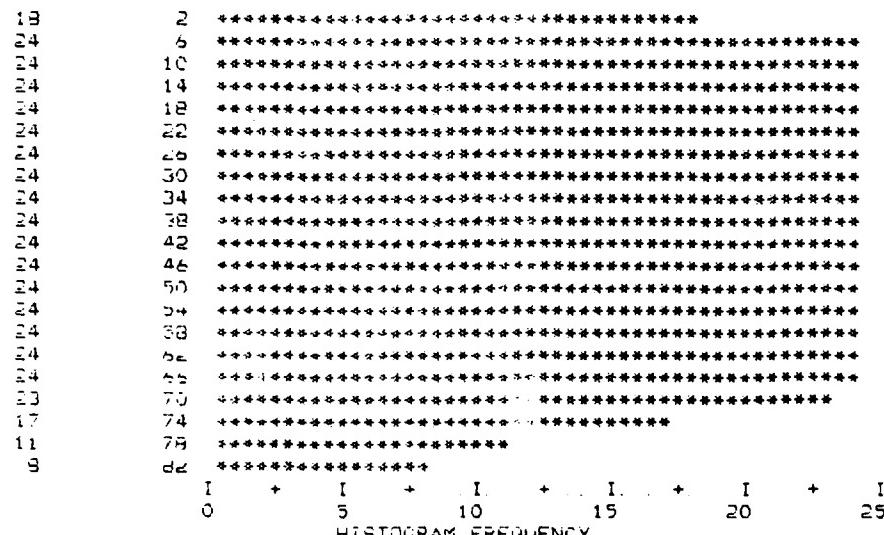
MEAN	3.397	STD EPR	.080	MEDIAN	3.000
MODE	1.000	STD DEV	1.717	VARIANCE	2.949
KURTOSIS	-1.269	S E KURT	1.996	SKEWNESS	.089
S E SKEW	.114	PANGE	5.000	MINIMUM	1.000
MAXIMUM	6.000	SUM	1585.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10 00	1 000	25 00	2 000	33 30	2 000
50 00	3 000	66 70	4 000	75 00	5 000
90 00	6 000				
VALID CASES	461	MISSING CASES	0		

SPCINT SAMPLE POINT NUMBER

VALUE	CUM			VALUE	CUM			VALUE	CUM		
	FREQ	PCT	PCT		FREQ	PCT	PCT		FREQ	PCT	PCT
1	6	1	1	29	5	1	38	57	6	1	74
2	5	1	3	30	5	1	39	58	6	1	75
3	5	1	4	31	5	1	40	59	6	1	77
4	5	1	5	32	5	1	42	60	6	1	78
5	6	1	7	33	5	1	43	61	6	1	79
6	5	1	8	34	5	1	44	62	6	1	81
7	6	1	9	35	6	1	46	63	6	1	82
8	0	1	10	36	6	1	47	64	6	1	83
9	5	1	12	37	6	1	48	65	6	1	85
10	6	1	13	38	6	1	49	66	6	1	86
11	6	1	14	39	6	1	51	67	6	1	87
12	6	1	15	40	6	1	52	68	6	1	89
13	0	1	17	41	6	1	53	69	6	1	90
14	6	1	18	42	5	1	55	70	6	1	91
15	6	1	20	43	5	1	56	71	5	1	92
16	5	1	21	44	5	1	57	72	5	1	93
17	6	1	22	45	5	1	59	73	5	1	94
18	0	1	23	46	5	1	60	74	4	1	95
19	6	1	25	47	5	1	61	75	3	1	96
20	6	1	26	48	5	1	62	76	3	1	97
21	6	1	27	49	5	1	64	77	3	1	97
22	6	1	29	50	6	1	65	78	3	1	98
23	5	1	30	51	6	1	66	79	2	0	98
24	6	1	31	52	6	1	68	80	2	0	99
25	6	1	33	53	5	1	69	81	2	0	99
26	6	1	34	54	6	1	70	82	2	0	100
27	6	1	35	55	6	1	72	83	1	0	100
28	6	1	36	56	6	1	73	84	1	0	100

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 50 OCCURRENCES



MEAN	39.378	STD ERR	1.047	MEDIAN	39.000
MODE	1.000	STD DEV	22.481	VARIANCE	505.416
AUTOSIS	-1.140	S E KURT	1.996	SKEWNESS	.043
S E SKEW	114	RANGE	83.000	MINIMUM	1.000
MAXIMUM	84.000	SUM	18015.000		

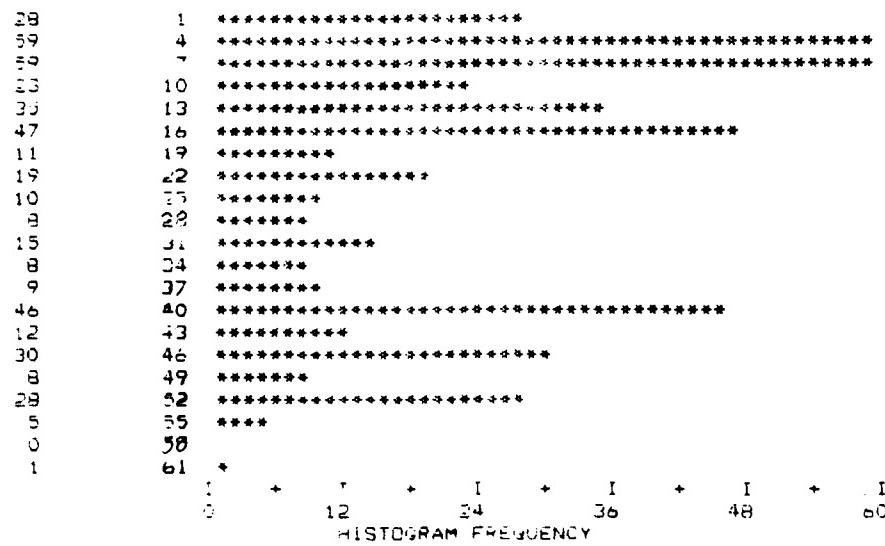
PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
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50.00	39.000	66.10	52.000	75.00	58.000
90.00	70.000				

VALID CASES 461 MISSING CASES 0

TRAIT LENGTH TRAIT

VALUE	FREQ			PCT			M	FREQ			PCT			CUM
	FREQ	PCT	PCT	FREQ	PCT	PCT		FREQ	PCT	PCT	FREQ	PCT	PCT	
1	17	4	4	18	2	5	55	36	2	0	70			
2	11	2	5	19	1	3	55	37	3	1	71			
3	34	7	13	20	8	2	57	38	4	1	72			
4	9	2	15	21	8	4	59	39	6	1	73			
5	16	3	19	22	8	2	60	40	10	2	75			
6	22	5	24	23	3	1	61	41	30	7	82			
7	29	6	30	25	7	2	62	42	10	2	84			
8	8	2	32	26	3	1	63	44	2	0	84			
9	8	2	33	27	1	0	63	45	8	2	86			
10	8	2	35	28	4	1	64	46	22	5	91			
11	7	2	37	29	3	1	65	48	8	2	93			
12	4	1	38	30	11	2	67	51	16	3	96			
13	15	3	41	31	2	0	68	52	4	1	97			
14	16	3	44	32	2	0	68	53	8	2	99			
15	40	9	53	33	4	1	69	54	5	1	100			
16	3	1	54	34	2	0	69	61	1	0	100			
17	4	1	54	35	2	0	70							

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 1 20 OCCURRENCES



MEAN	52.002	STD ERR	7.91	MEDIAN	15.000
MODE	15.000	STD DEV	16.944	VARIANCE	288.785
KURTOSIS	-1.257	S E KURT	1.995	SKEWNESS	4.69
S E SKEW	1.14	RANGE	50.000	MINIMUM	1.000
MAXIMUM	51.000	SUM	10143.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	3.370	25.00	7.000	33.30	9.000
50.00	17.000	56.70	30.000	75.00	40.000
90.00	46.000				

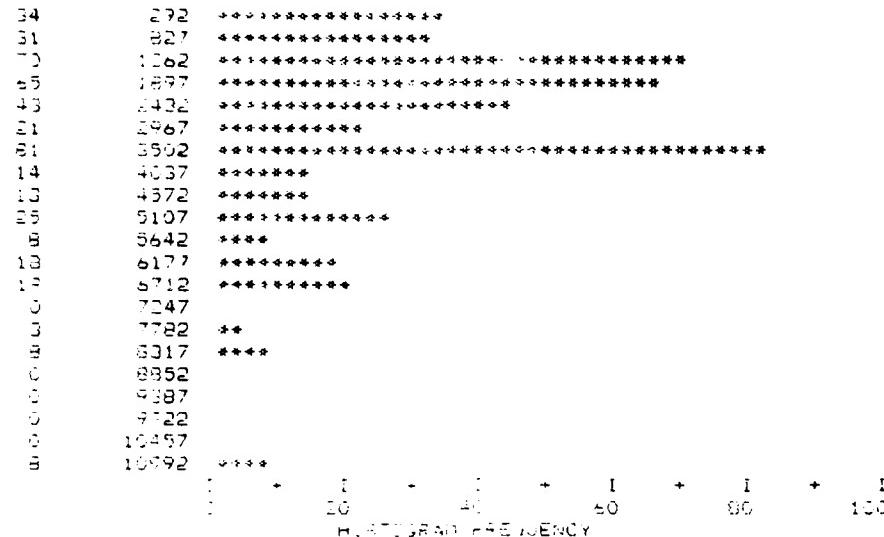
VALID CASES 471 MISSING CASES 0

Census tract data

10P FIGHT POPULATION

VALUE	FREQ	CUM	PCT	VALUE	FREQ	CUM	PCT	VALUE	FREQ	CUM	PCT
34 00	34	7	7	2895 00	8	8	53	4617 00	4	1	81
40 00	4	8	9	2701 00	4	1	54	4944 00	10	2	83
487 00	22	5	14	2752 00	4	1	54	5037 00	8	2	85
1881 00	9	2	15	2863 00	11	2	57	5282 00	3	1	85
1576 00	9	2	16	2882 00	2	0	57	5357 00	4	1	86
1487 00	2	0	18	3367 00	40	4	56	5863 00	8	2	88
1477 00	18	3	21	3414 00	2	0	56	5990 00	6	1	89
1545 00	29	5	28	3422 00	5	1	57	6027 00	11	2	92
1570 00	7	2	29	3480 00	3	1	58	6291 00	1	0	92
1652 00	3	1	30	3516 00	2	0	58	6501 00	10	2	94
1886 00	5	1	31	3520 00	1	0	58	6585 00	2	0	94
1898 00	18	6	34	3632 00	30	7	75	6853 00	7	2	96
1919 00	42	5	39	3777 00	2	0	75	7838 00	3	1	97
2058 00	15	3	43	3829 00	4	1	76	8087 00	8	2	98
2078 00	4	1	43	5917 00	8	2	78	11250 00	8	2	100
2157 00	18	4	47	4377 00	1	0	78				
2627 00	17	4	51	4393 00	8	2	80				

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 200 OCCURRENCES



MEAN 1042.875 STD ERR .01113 MEDIAN 2627 000
 MODE 1057 000 STD DEV 3170.491 VARIANCE 4713200.55
 KURTOSIS 2.260 S.E. SKEPT 1.996 SKEWNESS 1.275
 S.E. SKEW 1.4 RANGE 11216 000 MINIMUM 34 000
 MAXIMUM 11250 000 SEM 140.1604 70

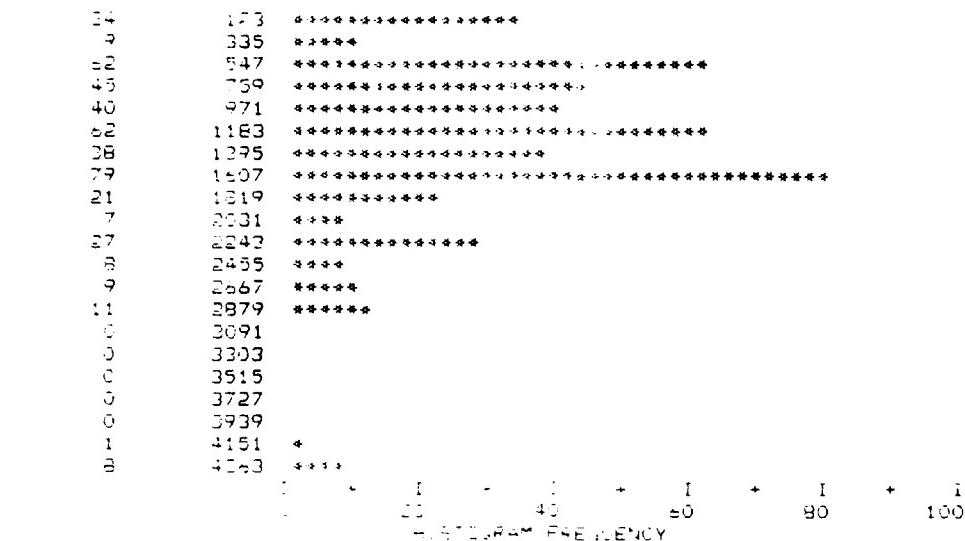
PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10 00	347 000	25 00	345 000	33 00	1898 000
50 00	1407 000	50 00	1420 000	75 00	3777 000
90 00	6127 000				

VALID CASES 451 MISSING 1454

10. FREQ. AND PCT. FOR NOTE 104198

VALUE	FREQ	PCT	CUM	VALUE	FREQ	PCT	CUM	VALUE	FREQ	PCT	CUM
19 00	24	2	7	1151 00	6	1	16	1723 00	8	2	82
350 00	3	2	9	1152 00	5	1	17	1795 00	1	0	82
461 00	25	5	14	1195 00	4	0	18	1800 00	4	1	83
546 00	12	3	16	1201 00	30	7	24	1881 00	8	2	85
569 00	22	5	19	1255 00	3	1	25	2015 00	3	1	85
539 00	19	3	22	1291 00	11	2	27	2070 00	4	1	86
656 00	13	1	23	1338 00	2	0	27	2153 00	10	2	88
706 00	16	3	26	1342 00	1	0	28	2163 00	6	1	90
745 00	24	5	32	1384 00	4	0	28	2186 00	11	2	92
806 00	2	0	32	1412 00	2	0	30	2361 00	8	2	94
899 00	19	3	35	1458 00	8	2	32	2652 00	2	0	94
941 00	4	1	37	1461 00	4	1	38	2664 00	7	2	96
981 00	4	1	38	1485 00	3	0	38	2775 00	8	2	97
1055 00	17	4	41	1582 00	40	9	52	2824 00	3	1	98
1079 00	15	3	44	1695 00	29	9	58	4199 00	1	0	98
1117 00	4	1	45	1611 00	10	2	60	4467 00	8	2	100

COUNT MINPOINT THE SYMBOL EQUALS APPROXIMATELY 200 OCCURRENCES

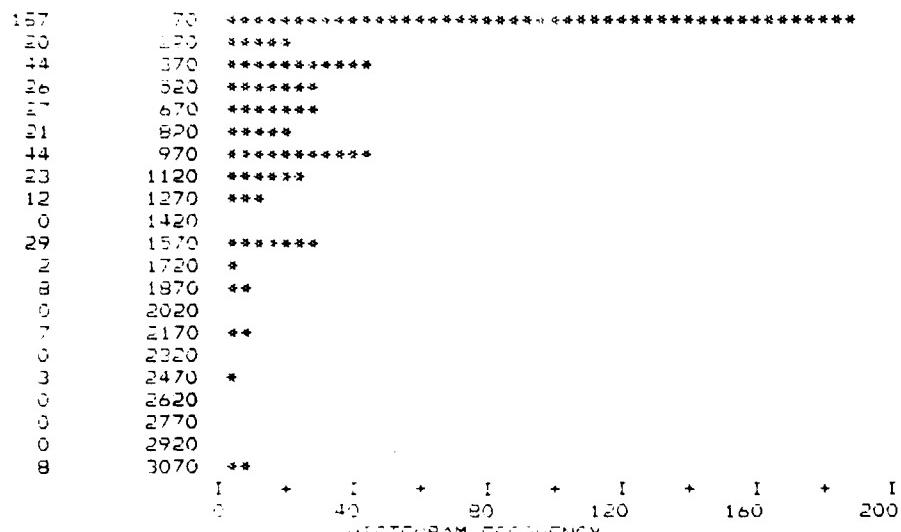


MEAN	1073 458	STD. ERR.	17 1 6	MEDIAN	1207 000
MODE	1582 000	STD. DEV.	147 370	VARIANCE	635834 053
SKEWNESS	3 003	KURT.	1 274	SKENESS	1 213
5 E. SKEW	11 4	RANGE	4448 000	MINIMUM	19 000
MAXIMUM	1467 010	Q1	587164 000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10 00	441 019	12 00	105 017	33 30	899 000
50 00	1073 458	56 00	1795 000	75 00	1595 000
90 00	1117 000				
1400 000	100	1400 000	A = 1		

FREQUENCY DISTRIBUTION											
VALUE	FREQ	PCT	CUM	VALUE	FREQ	PCT	CUM	VALUE	FREQ	PCT	CUM
1.00	53	14	14	417.00	40	4	54	1015.00	30	7	80
8.00	9	2	16	480.00	4	1	55	1089.00	11	2	82
23.00	8	2	17	524.00	22	5	50	1145.00	4	1	83
24.00	8	2	17	513.00	10	2	54	1169.00	8	2	85
28.00	16	3	23	554.00	1	0	54	1230.00	2	0	85
33.00	6	1	24	577.00	2	0	54	1296.00	10	2	88
34.00	22	5	29	705.00	3	1	55	1509.00	10	2	90
73.00	7	2	31	711.00	5	1	66	1583.00	1	0	90
75.00	11	3	33	755.00	8	2	68	1593.00	8	2	92
78.00	4	1	34	781.00	2	0	68	1599.00	6	1	93
130.00	15	3	37	820.00	4	1	69	1628.00	4	1	94
143.00	15	3	41	822.00	1	0	69	1646.00	2	0	94
162.00	17	4	44	886.00	6	1	70	1930.00	8	2	96
292.00	3	1	45	898.00	6	2	72	2107.00	7	2	98
370.00	2	0	45	955.00	3	1	73	2479.00	3	1	98
408.00	2	0	46	981.00	3	1	74	3139.00	8	2	100

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 4.00 OCCURRENCES



I + I + I + I + I
0 40 80 120 160 200

HISTOGRAM FREQUENCY

MEAN	593.210	STD ERR	31.153	MEDIAN	417.000
MODE	1.000	STD DEV	654.083	VARIANCE	447679.167
KURTOSIS	2.067	S E KURT	1.996	SKEWNESS	1.469
S E SKEW	114	RANGE	3138.000	MINIMUM	1.000
MAXIMUM	3139.000	SUM	273470.000		

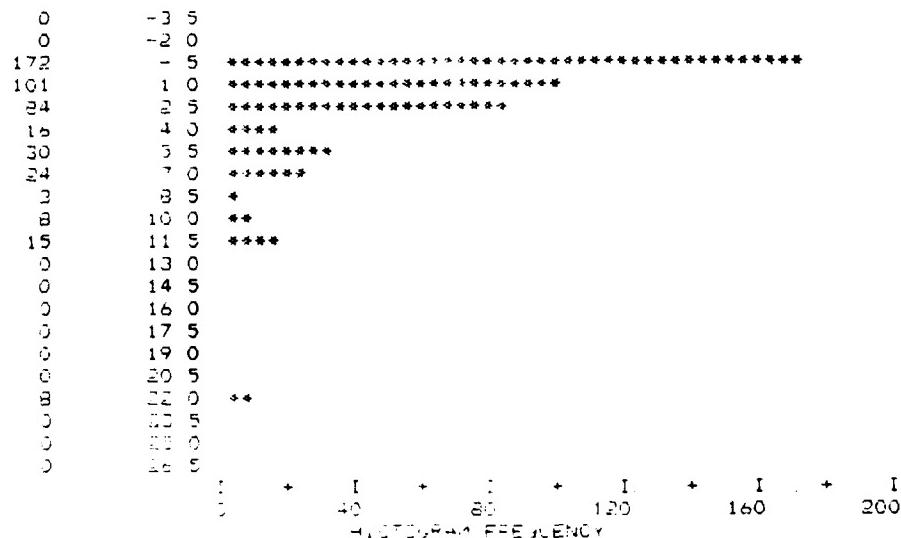
PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	1.000	50.00	34.000	33.30	78.000
50.00	417.000	66.70	755.000	75.00	1015.000
90.00	1541.000				

VALID CASES 461 MISSING CASES 0

ALAND AREA LAND COVERAGE

VALUE	CUM			VALUE	CUM			VALUE	CUM		
	FREQ	PCT	PCT		FREQ	PCT	PCT		FREQ	PCT	PCT
0 0	56	12	12	87	1	1	55	3 15	3	1	77
00	29	4	18	89	3	1	55	3 47	3	1	78
03	9	2	20	95	2	0	56	3 59	4	1	79
05	9	2	22	1 08	2	0	56	3 87	1	0	79
11	8	2	24	1 15	4	1	57	4 34	8	2	81
11	4	1	25	1 30	4	1	58	5 65	30	7	87
13	15	3	29	1 35	2	0	58	6 26	10	2	90
15	9	2	30	1 46	4	1	59	7 05	4	1	90
16	7	2	31	1 78	8	2	61	7 05	10	2	93
21	16	3	35	1 86	2	0	61	8 72	3	1	93
23	11	2	37	1 87	1	0	62	9 30	6	1	95
32	17	4	44	2 17	11	2	64	9 34	2	0	95
40	15	3	44	2 29	8	2	56	11 16	8	2	97
41	40	9	53	2 75	8	2	57	12 22	7	2	98
46	2	0	53	3 01	22	5	72	22 51	8	2	100
50	3	1	54	3 10	16	3	76				
59	2	0	54	3 14	5	1	77				

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 4.00 OCCURRENCES



4.00 SYMBOL FREQUENCY

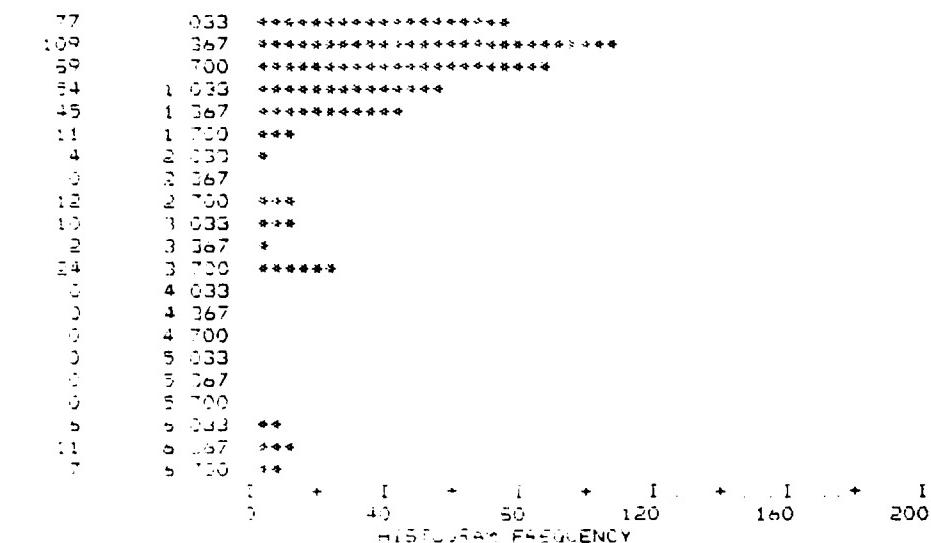
MEAN	431	STD EPR	184	MEDIAN	413
MODE	0 0	STD DEV	3 940	VARIANCE	15 527
KURTOSIS	10 093	S E KURT	1 795	SKEWNESS	2 816
S E SKEW	174	RANGE	22 506	MINIMUM	0 0
MAXIMUM	22 516	SUM	1143 660		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10 00	1 0	25 00	1 05	33 30	208
50 00	4 3	50 70	2 749	75 00	3 101
90 00	7 0				

VALID CASES 461 MISSING CASES .

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COUNT MIDPOINT ONE STANDARD DEVIATION APPROXIMATELY 4.00 OCCURRENCES

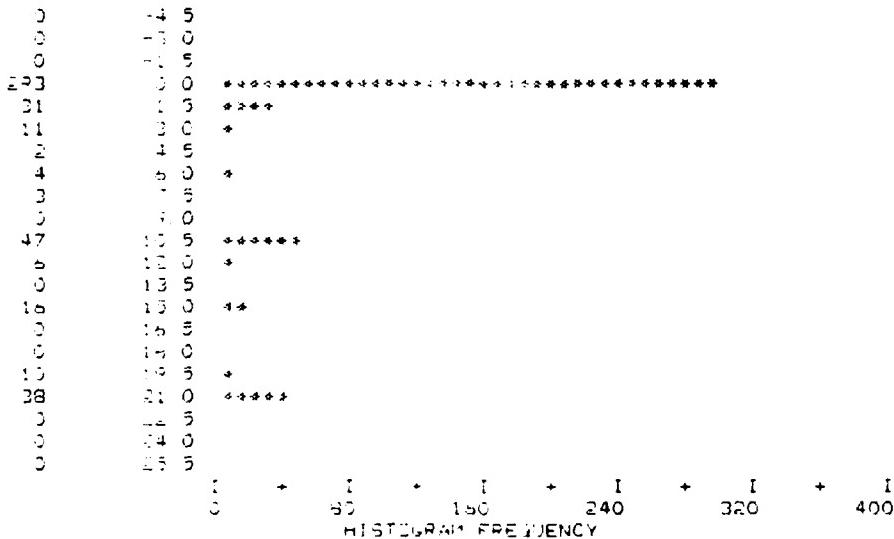


MEAN	1.514	STD. ERR.	.070	MEDIAN	693
MODE	1.570	STD. DEV.	.512	VARIANCE	2.285
SKEWNESS	4.448	S.E. KURT.	1.795	SKEWNESS	2.223
S.E. SKEW	.114	RANGE	5.633	MINIMUM	047
MAXIMUM	3.500	S.D.	.567-.340		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10 10	155	25 10	382	33 30	421
50 10	543	50 70	970	75 00	1 322
90 00	3 690				
ALLO CASES	161	MISSING CASES	9		

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
0 0	0.0	185	40.1	40.1	40.1
0 1	0.1	3	7	7	40.8
0 1	0.1	2	4	4	41.2
0 3	0.3	0	0	0	41.6
0 4	0.4	15	3.3	3.3	44.9
0 6	0.6	2	4	4	45.3
0 7	0.7	2	7	7	46.0
0 7	0.7	1	2	2	46.2
1 0	1.0	11	2.4	2.4	48.6
1 7	1.7	17	1.7	1.7	50.3
1 7	1.7	17	3.7	3.7	54.0
1 8	1.8	16	3.5	3.5	57.5
1 8	1.8	4	9	9	58.4
1 9	1.9	1	1	1	59.4
1 9	1.9	1	4	4	59.9
2 0	2.0	0	0	0	60.3
2 4	2.4	5	9	9	60.5
2 4	2.4	4	4	4	61.8
2 5	2.5	5	9	9	63.6
2 5	2.5	4	7	7	64.4
2 5	2.5	3	7	7	65.1
2 5	2.5	4	9	9	65.9
2 5	2.5	6	1.7	1.7	67.7
2 6	2.6	11	2.4	2.4	70.1
2 6	2.6	1	2	2	70.3
2 7	2.7	8	1.7	1.7	72.0
2 7	2.7	3	7	7	72.7
2 8	2.8	2	4	4	73.1
2 8	2.8	4	9	9	74.0
2 8	2.8	3	7	7	74.6
2 9	2.9	0	1.7	1.7	76.4
2 9	2.9	22	4.8	4.8	81.1
3 0	3.0	0	1.5	1.5	82.6
3 0	3.0	10	2.2	2.2	84.8
3 0	3.0	9	1.3	1.3	86.1
3 0	3.0	15	3.5	3.5	89.6
3 0	3.0	10	2.2	2.2	91.8
3 0	3.0	4	1.7	1.7	93.5
3 1	3.1	5	5	5	100.0
<hr/>					
	TOTAL	450	100.0	100.0	

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 8.00 OCCURRENCES

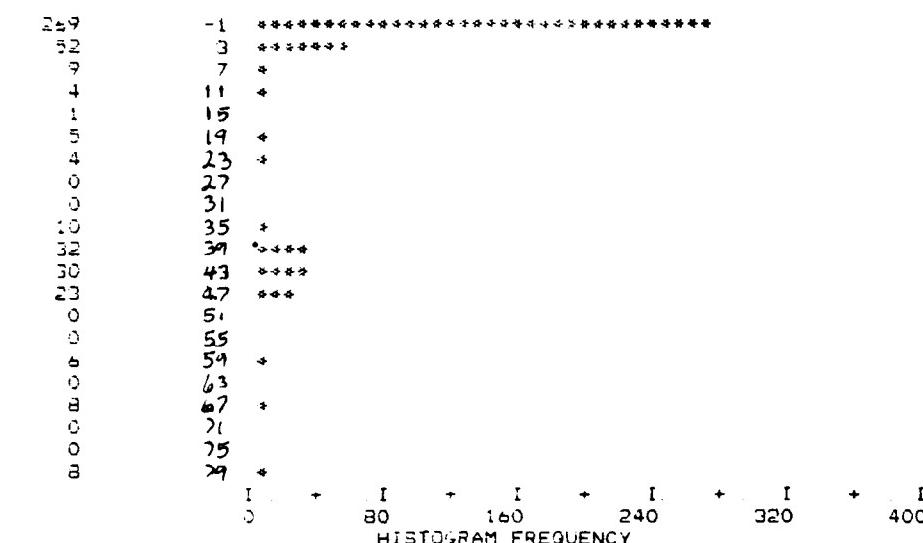


MEAN	4 262	STD ERR	328	MEDIAN	.167
MODE	0 0	STD DEV	.039	VARIANCE	49 467
KURTOSIS	572	S E KURT	1.996	SKENNESS	1 441
S E SKEW	114	RANGE	21 247	MINIMUM	0 0
MAXIMUM	21 247	SUM	1264 875		
PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10 00	0 0	25 00	0 0	33 30	0 0
50 00	167	50 70	1 243	75 00	9 911
90 00	19 301				
VALID CASES	451	MISSING CASES	0		

40B AREA OPEN WITH BUILDINGS

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
0 0	252	54.7	54.7	54.7	54.7
04	4	.9	.9	.9	55.5
15	1	.2	.2	.2	55.7
19	3	.7	.7	.7	56.4
21	2	.4	.4	.4	56.8
36	3	.7	.7	.7	57.5
74	4	.9	.9	.9	58.4
1 19	9	1.7	1.7	1.7	60.1
4 42	2	.4	.4	.4	60.5
1 70	9	1.7	1.7	1.7	62.3
2 59	8	1.7	1.7	1.7	64.0
2 68	4	.9	.9	.9	64.9
3 83	11	2.4	2.4	2.4	67.2
4 20	8	1.7	1.7	1.7	69.0
4 72	3	.7	.7	.7	69.6
5 70	5	1.1	1.1	1.1	70.7
8 04	1	.2	.2	.2	70.9
9 32	3	.7	.7	.7	71.6
11 58	4	.9	.9	.9	72.5
13 61	1	.2	.2	.2	72.7
13 75	2	.4	.4	.4	73.1
13 91	3	.7	.7	.7	73.8
23 19	4	.9	.9	.9	74.6
35 25	10	2.2	2.2	2.2	76.8
37 42	10	2.2	2.2	2.2	79.0
40 92	22	4.8	4.8	4.8	83.7
41 36	30	6.5	6.5	6.5	90.2
42 80	15	3.5	3.5	3.5	93.7
47 03	7	1.5	1.5	1.5	95.2
59 49	6	1.3	1.3	1.3	96.5
65 78	3	1.7	1.7	1.7	98.3
77 77	3	1.7	1.7	1.7	100.0
-----	-----	-----	-----	-----	-----
TOTAL	451	100.0	100.0		

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 8.00 OCCURRENCES



MEAN	12.324	STD ERR	.969	MEDIAN	0.0
MODE	0.0	STD DEV	20.805	VARIANCE	432.839
KURTOSIS	5.1	S E KURT	1.995	SKEWNESS	1.389
S E SKEW	1.14	RANGE	77.770	MINIMUM	0.0
MAXIMUM	77.770	SUM	5912.070		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	65.70	3.930	75.00	35.250
90.00	41.560				

VALID CASES 461 MISSING CASES 0

40 AREA OPEN WITHOUT BLDGS

VALUE	FREQ	PCT	CUM	VALUE	FREQ	PCT	CUM	VALUE	FREQ	PCT	CUM	
20	4	1	1	64	1	0	0	14	21	3	1	70
21	7	2	3	65	2	0	0	14	90	8	2	72
25	4	1	4	93	4	1	55	19	17	4	1	72
31	6	2	6	27	5	1	56	19	60	1	0	73
33	6	2	8	32	6	0	56	36	08	2	0	73
38	5	2	10	32	3	1	57	36	40	4	1	74
42	11	2	12	88	2	0	57	37	12	3	1	75
43	8	2	14	29	2	0	58	55	37	2	5	79
49	6	2	16	47	4	1	59	58	51	10	2	82
55	2	0	18	60	3	0	59	62	61	10	2	84
58	3	1	19	73	3	0	59	66	43	16	3	87
60	3	1	20	34	4	1	63	68	99	30	7	94
65	4	1	24	14	5	1	64	76	93	7	2	95
67	7	2	31	25	6	1	66	86	80	5	1	97
71	3	1	33	66	1	0	66	90	65	8	2	98
73	6	2	33	82	3	1	67	124	44	8	2	100
74	0	0	34	95	11	0	69					

POINT	THE STANDARD DEVIATION APPROXIMATELY 8.00 OCCURRENCES
10	*****
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86	*
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332	*
338	*
344	*
350	*
356	*
362	*
368	*
374	*
380	*
386	*
392	*
398	*
404	*

MEAN	STD. DEV.	STD. ERR.	S.E. MDT.	MEDIAN	VARIANCE	SKEWNESS	MINIMUM
3.410	1.024	0.313	0.353	3.460	9.82	9.83	201
1.193	1.154	0.364	0.396	1.14	1.376	1.376	201
5.6 E SKW	1.14	RANGE	124-241				
1.440 M	2.4432	SDM	9568.977				

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	.662	25.00	51.	33.30	.664
50.00	.664	65.70	12.54	75.00	.55366
75.00	.665				

ADDED CASES 421 MISSING CASES

General building descriptions

Major Age of Structure											
Value	Sum			Value	Sum			Value	Sum		
	Freq	Pct	Pct		Freq	Pct	Pct		Freq	Pct	Pct
-50	4	2	2	10	1	3	25	64	12	5	71
-50	2	1	3	14	5	2	27	65	5	2	74
-25	1	0	3	20	4	2	29	66	1	0	74
-20	4	2	5	24	7	3	32	67	1	0	75
-15	14	6	11	25	4	2	34	68	1	0	75
-15	2	1	12	30	11	5	39	69	7	3	78
-14	1	0	13	34	10	5	44	70	14	6	85
-10	2	1	14	35	6	3	46	71	1	0	85
-5	1	0	14	40	3	1	48	72	1	0	85
-1	1	0	15	44	5	3	50	74	14	6	92
1	5	2	17	49	2	1	51	75	8	4	95
2	3	1	18	50	9	4	55	79	4	2	97
4	10	5	23	54	9	4	60	80	4	2	99
5	1	0	23	55	8	4	63	81	1	0	100
6	1	0	24	59	2	1	54	84	1	0	100
9	2	1	25	60	4	2	56				

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 80 OCCURRENCES

4	-53	*****
0	-46	
0	-39	
2	-32	***
1	-25	*
20	-18	*****
3	-11	***
2	-4	**
20	0	*****
3	10	****
9	17	*****
11	24	*****
21	31	*****
9	38	*****
5	45	*****
28	52	*****
5	59	*****
27	66	*****
38	73	*****
9	80	*****
1	87	*

I. + I. + I. + I. + I. + I.
0 8 16 24 32 40
HISTOGRAM FREQUENCY

MEAN	37.545	STD ERR	3.240	MEDIAN	44.000
S.D.	16.000	STD DEV	33.254	VARIANCE	1108.805
KURTOSIS	-5.04	S.E. KURT	1.491	SKENNESS	-5.37
SKEWNESS	1.54	RANGE	134.000	MINIMUM	-50.000
MAXIMUM	64.000	SUM	3282.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	-16.000	25.00	11.000	33.30	25.000
50.00	44.000	56.70	64.000	75.00	68.750
90.00	74.000				
VALID CASES	220	MISSING CASES	0		

2.1.2 E-CLOSED WALL IN FOOTPRINT

VALUE	CUM			VALUE	CUM			VALUE	CUM		
	FREQ	PCT	FCT		FREQ	PCT	FCT		FREQ	PCT	FCT
50	1	0	0	162	1	0	42	368	4	2	84
54	1	0	1	170	8	4	46	378	1	0	84
74	1	0	1	180	10	5	50	380	2	1	85
75	1	0	2	194	1	0	51	388	2	1	86
80	7	3	5	196	1	0	51	390	4	2	88
84	1	0	5	200	5	2	54	400	5	2	90
86	2	1	6	210	8	4	57	408	1	0	90
90	10	5	11	220	7	3	60	420	3	1	92
96	1	0	11	230	4	2	62	428	1	0	92
100	8	4	15	240	6	3	65	438	1	0	93
102	1	0	15	250	4	2	67	440	2	1	94
104	2	1	16	254	2	1	68	498	1	0	94
108	1	0	17	260	2	1	69	478	2	1	95
110	9	4	21	266	1	0	69	480	2	1	96
116	1	0	21	280	5	2	71	500	1	0	96
120	7	3	25	290	5	2	74	518	1	0	97
124	1	0	25	300	2	1	75	520	1	0	97
130	8	4	29	318	1	0	75	528	1	0	98
140	11	5	34	320	3	1	76	556	2	1	99
144	1	0	34	330	2	1	77	576	1	0	99
150	5	3	37	340	2	1	78	500	1	0	100
156	1	0	37	348	3	1	80	740	1	0	100
160	10	5	42	360	5	2	82				

COUNT	MIDPOINT	ONE SYMBOL EQUALS APPROXIMATELY 80 OCCURRENCES
11	65	*****
25	78	*****
29	131	*****
36	164	*****
15	197	*****
17	230	*****
9	263	*****
12	296	*****
8	329	*****
13	362	*****
14	395	*****
7	428	*****
1	461	*
5	494	*****
3	527	****
3	560	****
1	593	*
0	626	
0	659	
0	692	
1	725	*

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 0 8 16 24 32 40

HISTOGRAM FREQUENCY

MEAN	227.591	STD ERR	8.733	MEDIAN	180.000
MODE	140.000	STD DEV	129.527	VARIANCE	16777.202
KURTOSIS	.626	S E KURT	1.991	SKEWNESS	1.028
S E SKEW	164	RANGE	690.000	MINIMUM	50.000
MAXIMUM	740.000	SUM	50070.000		

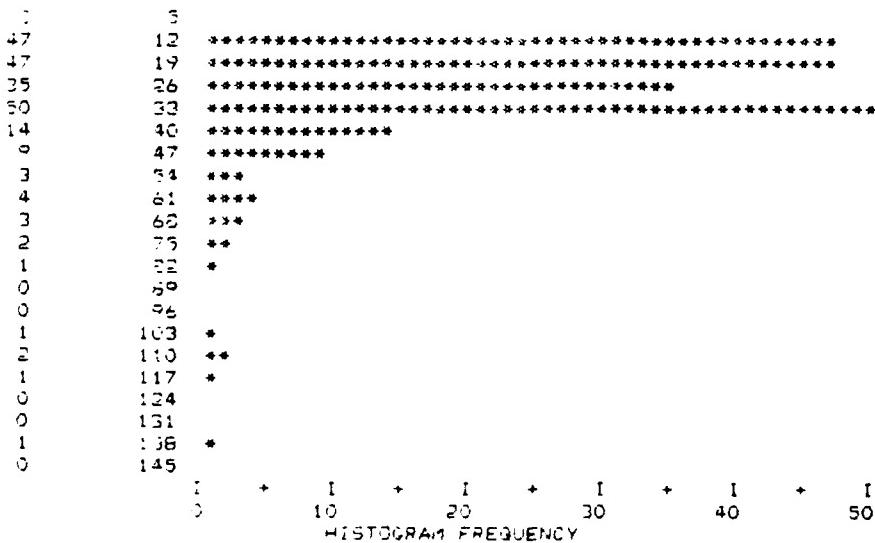
PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	90.000	25.00	125.500	33.30	140.000
50.00	180.000	66.70	251.628	75.00	319.500
90.00	407.200				

VALID CASES	220	MISSING CASES	0
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AVERAGE WALL HEIGHT

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	9	1	5	5	5
	10	9	3.6	3.6	4.1
	11	3	1.4	1.4	5.5
	12	12	5.5	5.5	10.9
	14	2	.9	.9	11.8
	15	21	9.5	9.5	21.4
	17	4	1.8	1.8	23.2
	18	4	1.8	1.8	25.0
	19	1	.5	.5	25.5
	20	26	11.8	11.8	37.3
	22	12	5.5	5.5	42.7
	23	3	1.4	1.4	44.1
	24	4	1.8	1.8	45.9
	25	26	11.8	11.8	57.7
	27	1	.5	.5	58.2
	28	1	.5	.5	58.6
	30	26	11.8	11.8	70.5
	32	0	2.7	2.7	73.2
	33	3	1.4	1.4	74.5
	35	15	6.8	6.8	81.4
	40	11	5.0	5.0	86.4
	42	1	.5	.5	86.8
	43	2	.9	.9	87.7
	45	6	2.7	2.7	90.5
	50	3	1.4	1.4	91.8
	55	3	1.4	1.4	93.2
	60	4	1.8	1.8	95.0
	65	2	.9	.9	95.9
	70	1	.5	.5	96.4
	75	2	.9	.9	97.3
	85	1	.5	.5	97.7
	100	1	.5	.5	98.2
	110	2	.9	.9	99.1
	120	1	.5	.5	99.5
	140	1	.5	.5	100.0
	TOTAL	220	100.0	100.0	

COUNT = NUMBER OF ONE SYMBOL EQUALS APPROXIMATELY 100 OCCURRENCE

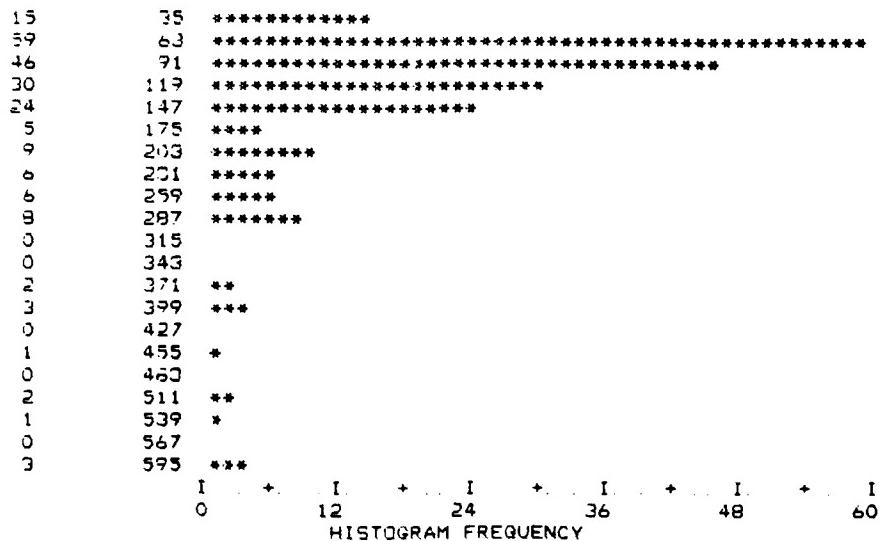


MEAN	29.209	STD ERR	1.276	MEDIAN	25.000
MODE	20.000	STD DEV	18.928	VARIANCE	358.285
KURTOSIS	10.251	S E KURT	1.991	SKEWNESS	2.740
S E SKEW	1.64	RANGE	131.000	MINIMUM	9.000
MAXIMUM	140.000	SUM	6426.000		
PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	12.000	25.00	18.250	33.30	20.000
50.00	25.000	66.70	30.000	75.00	35.000
90.00	45.000				
VALID CASES	220	MISSING CASES	0		

1971-1972 - 31 510m 5126 3146

VALUE	CLM			CLM			CLM				
	FREQ	PCT	PCT	VALUE	FREQ	PCT	PCT	VALUE	FREQ	PCT	PCT
30	1	0	0	105	3	1	56	210	1	0	85
35	3	1	2	110	8	4	60	215	1	0	85
40	6	3	5	115	2	1	60	220	3	1	87
45	5	2	7	120	10	5	65	240	3	1	88
50	16	7	14	125	1	0	65	250	3	1	90
55	3	1	15	130	5	2	68	260	3	1	91
60	15	7	22	132	1	0	68	290	1	0	91
65	5	2	25	140	3	1	70	300	7	3	95
70	15	7	31	145	1	0	70	360	1	0	95
75	5	2	34	150	16	7	77	370	1	0	95
80	10	5	38	160	4	2	79	400	3	1	97
85	6	3	41	170	2	1	80	450	1	0	97
89	1	0	41	175	1	0	80	500	2	1	98
90	8	4	45	180	2	1	81	550	1	0	99
95	3	1	46	190	1	0	82	600	3	1	100
100	18	8	55	200	4	3	85				

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 1.20 OCCURRENCES



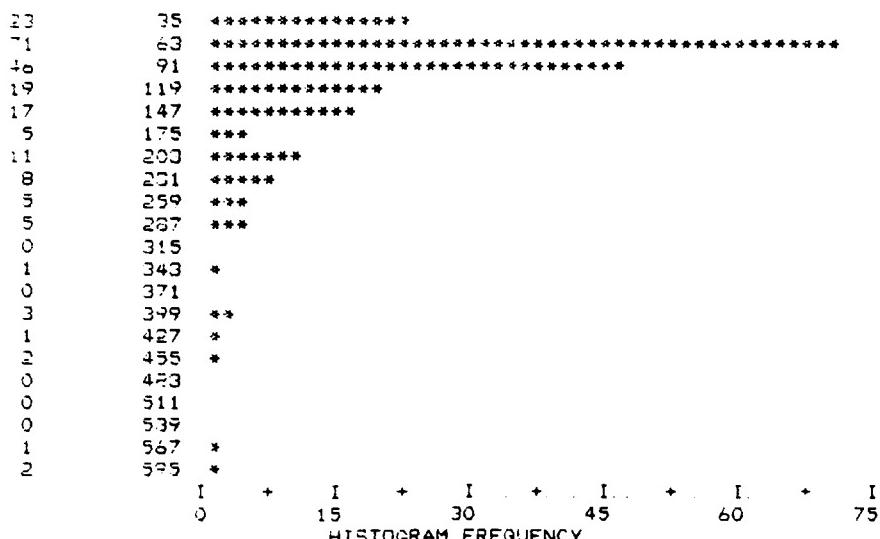
MEAN	103 073	STD ERR	7 187	MEDIAN	100 000
MODE	100 000	STD DEV	106 310	VARIANCE	11301 748
KURTOSIS	6 195	S E KURT	1 991	SKEWNESS	2 000
S E SKEW	164	RANGE	570 000	MINIMUM	30 000
MAXIMUM	500 000	SUM	29275 000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10 00	50 000	25 00	70 000	33 30	75 000
50 00	100 000	66 70	130 000	75 00	150 000
90 00	260 000				
VALID CASES	220	MISSING CASES	0		

DATA FROM FILE E02.TAB

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	30	2	.9	.9	.9
	35	5	2.3	2.3	3.2
	38	1	.5	.5	3.6
	40	10	4.5	4.5	8.2
	45	5	2.3	2.3	10.5
	50	25	11.4	11.4	21.8
	55	5	2.7	2.7	24.5
	60	14	6.4	6.4	30.9
	63	1	.5	.5	31.4
	65	1	.5	.5	31.8
	70	15	6.8	6.8	38.6
	75	9	4.1	4.1	42.7
	80	13	5.9	5.9	48.6
	85	3	1.4	1.4	50.0
	90	11	5.0	5.0	55.0
	95	2	.9	.9	55.9
	100	17	7.7	7.7	63.6
	110	9	4.1	4.1	67.7
	115	1	.5	.5	68.2
	120	4	1.8	1.8	70.0
	125	1	.5	.5	70.5
	130	4	1.8	1.8	72.3
	135	1	.5	.5	72.7
	140	1	.5	.5	73.2
	150	12	5.5	5.5	78.6
	155	1	.5	.5	79.1
	160	2	.9	.9	80.0
	170	2	.9	.9	80.9
	180	3	1.4	1.4	82.3
	200	9	4.1	4.1	86.4
	210	1	.5	.5	86.8
	215	1	.5	.5	87.3
	220	3	1.4	1.4	88.6
	230	5	2.3	2.3	90.9
	250	3	1.4	1.4	92.3
	260	1	.5	.5	92.7
	270	1	.5	.5	93.2
	300	5	2.3	2.3	95.5
	350	1	.5	.5	95.9
	400	3	1.4	1.4	97.3
	420	1	.5	.5	97.7
	450	2	.9	.9	98.6
	560	1	.5	.5	99.1
	600	2	.9	.9	100.0
	TOTAL	220	100.0	100.0	

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 150 OCCURRENCES



MEAN	120.232	STD ERR	6.691	MEDIAN	87.500
MODE	50.000	STD DEV	99.247	VARIANCE	9850.051
KURTOSIS	6.968	S E KURT	1.991	SKEWNESS	2.408
S E SKEW	1.64	RANGE	570.000	MINIMUM	30.000
MAXIMUM	600.000	SUM	26451.000		

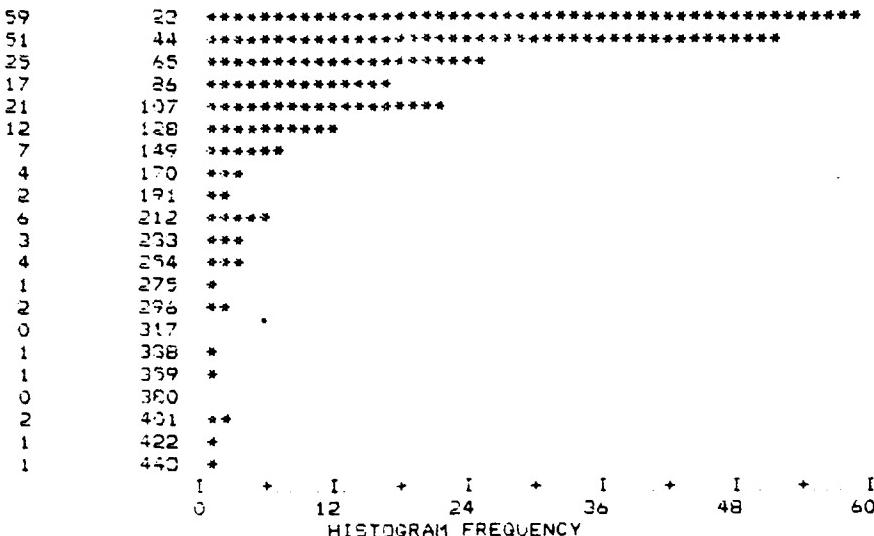
PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	45.000	25.00	60.000	33.30	70.000
50.00	87.500	66.70	110.000	75.00	150.000
90.00	230.000				

VALID CASES 220 MISSING CASES 0

STUDY VALUE (IN CM OF CLOTH)

STUDY	VALUE	FREQ	PCT	STUDY	VALUE	FREQ	PCT	STUDY	VALUE	FREQ	PCT
15	2	1	1	48	1	0	44	130	2	1	84
17	1	0	1	50	14	2	50	140	1	0	85
19	1	0	2	55	5	2	52	150	6	3	87
20	8	4	5	60	9	4	56	160	4	2	89
22	1	0	0	65	4	2	58	200	2	1	90
23	2	1	7	70	4	2	60	210	2	1	91
24	1	0	7	75	3	1	61	220	4	2	93
25	18	8	15	80	5	2	64	240	3	1	94
29	1	0	16	90	11	5	69	250	4	2	96
30	24	11	27	95	1	0	59	275	1	0	96
35	10	5	31	100	10	5	74	300	2	1	97
40	14	6	38	105	3	1	75	330	1	0	98
42	1	0	38	110	7	3	78	350	1	0	98
43	1	0	39	115	1	0	79	400	2	1	99
45	9	4	43	120	9	4	83	420	1	0	100
47	1	0	43	125	1	0	93	450	1	0	100

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 1 20 OCCURRENCES



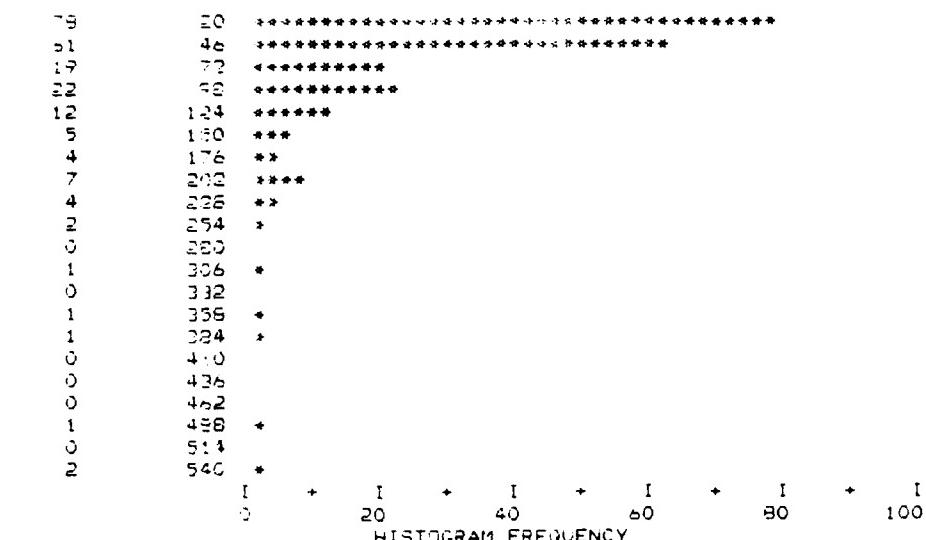
MEAN	85.300	STD ERR	3.048	MEDIAN	52.500
MODE	30.000	STD DEV	30.066	VARIANCE	5410.540
KURTOSIS	5.173	S E KURT	1.991	SKEWNESS	2.164
S E SKEW	.164	RANGE	435.000	MINIMUM	15.000
MAXIMUM	450.000	SUM	18766.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	25.000	25.00	30.000	33.30	40.000
50.00	52.500	66.70	90.000	75.00	108.750
90.00	209.000				

VALID CASES 220 MISSING CASES 0

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	10	1	5	5	5
	12	2	9	9	14
	15	12	55	55	68
	17	1	5	5	73
	18	3	14	14	86
	20	26	118	118	205
	23	1	5	5	209
	25	19	86	86	295
	28	2	9	9	305
	30	11	50	50	355
	35	10	45	45	400
	38	1	5	5	405
	40	22	100	100	505
	43	1	5	5	509
	45	9	41	41	550
	50	13	59	59	609
	55	5	23	23	632
	60	9	41	41	673
	65	1	5	5	677
	70	3	14	14	691
	75	3	14	14	705
	80	3	14	14	718
	85	3	14	14	732
	90	9	41	41	773
	95	1	5	5	777
	100	5	23	23	800
	105	1	5	5	805
	110	3	14	14	818
	120	7	32	32	850
	130	3	14	14	864
	135	2	9	9	873
	140	1	5	5	877
	150	2	9	9	886
	160	2	9	9	895
	170	1	5	5	900
	180	3	14	14	914
	200	5	23	23	936
	210	2	9	9	945
	220	4	18	18	964
	250	1	5	5	968
	260	1	5	5	973
	300	1	5	5	977
	360	1	5	5	982
	375	1	5	5	986
	500	1	5	5	991
	550	2	9	9	1000
TOTAL		220	1000	1000	

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 2.60 OCCURRENCES



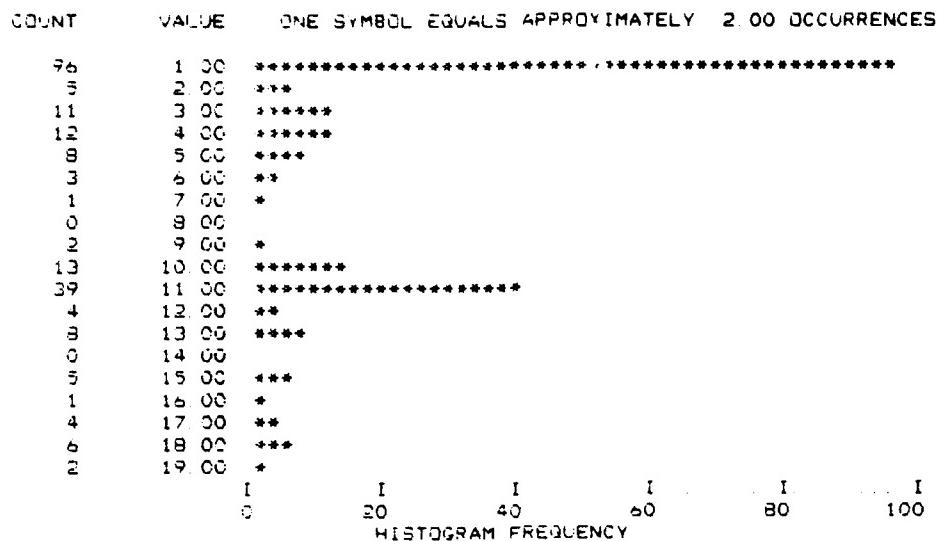
MEAN	73.273	STD ERR	5.616	MEDIAN	40.000
MODE	20.000	STD DEV	63.293	VARIANCE	6937.706
KURTOSIS	12.717	S E KURT	1.991	SKENNESS	3.136
S E SKEW	1.64	RANGE	540.000	MINIMUM	10.000
MAXIMUM	550.000	SUM	16120.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	20.000	25.00	25.000	33.30	30.000
50.00	40.000	66.70	60.000	75.00	90.000
90.00	179.000				

VALID CASES	220	MISSING CASES	0
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FE - STRUCTURE TYPE - BASE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
1 UNIT DETACHED	1	96	43.6	43.6	43.6
1 UNIT ATTACHED	2	5	2.3	2.3	45.9
2 UNITS	3	11	5.0	5.0	50.9
3 TO 4 UNITS	4	12	5.5	5.5	56.4
5 TO 9 UNITS	5	8	3.6	3.6	60.0
10 TO 19 UNITS	6	3	1.4	1.4	61.4
20 TO 49 UNITS	7	1	.5	.5	61.8
NONHOUSEKEEPING	7	2	.9	.9	62.7
OFFICE BUILDING	10	13	5.9	5.9	68.6
OTHER COMMERCIAL	11	39	17.7	17.7	86.4
INDUSTRIAL	12	4	1.8	1.8	88.2
HOSP OR INST	13	9	3.6	3.6	91.8
EDUCATIONAL	15	5	2.3	2.3	94.1
OTHER NONRESIDENT	16	1	.5	.5	94.5
FARM	17	4	1.8	1.8	96.4
OTHER	18	5	2.7	2.7	99.1
CANNOT ID	19	2	.9	.9	100.0
	TOTAL	220	100.0	100.0	



MEAN	5.345	STD ERR	.357	MEDIAN	3.000
MODE	1.000	STD DEV	5.473	VARIANCE	29.949
KURTOSIS	-587	SKEW	1.991	SKENESS	687
SKEW	.164	RANGE	18.000	MINIMUM	1.000
MAXIMUM	19.000	SUM	1286.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	1.000	25.00	1.000	33.30	1.000
50.00	3.000	66.70	10.000	75.00	11.000
90.00	13.000				
VALID CASES	220	MISSING CASES	0		

Spatial areas of building materials

AREA PAINTED SURFACE												
VALUE	CM			CM			CM			CM		
	FREQ	PCT	PCT	VALUE	FREQ	PCT	PCT	VALUE	FREQ	PCT	PCT	
3.0	38	17	17	1165.12	2	1	39	3200.00	1	0	62	
28.47	1	0	18	1195.27	1	0	40	3212.07	1	0	63	
44.18	1	0	18	1195.93	1	0	40	3231.29	1	0	63	
45.49	1	0	19	1197.53	1	0	40	3238.91	1	0	64	
56.80	1	0	19	1200.00	2	1	41	3241.88	1	0	64	
59.07	1	0	20	1249.80	1	0	42	3242.79	1	0	65	
70.45	1	0	20	1264.39	1	0	42	3520.00	1	0	65	
73.75	1	0	20	1274.45	1	0	43	3520.00	1	0	65	
80.21	1	0	21	1291.03	1	0	43	3538.83	1	0	66	
90.47	1	0	21	1422.10	1	0	44	3539.56	1	0	66	
103.02	1	0	22	1424.90	1	0	44	3550.68	1	0	67	
122.60	1	0	22	1489.66	1	0	45	3567.60	1	0	67	
123.36	1	0	23	1524.34	1	0	45	3570.00	1	0	68	
141.33	1	0	23	1543.57	1	0	45	3627.27	1	0	68	
171.59	1	0	24	1560.00	1	0	46	3771.43	1	0	69	
175.81	1	0	24	1600.00	2	1	47	3813.00	1	0	69	
207.52	2	1	25	1682.11	1	0	47	3834.78	1	0	70	
225.30	1	0	25	1720.18	1	0	48	3860.76	1	0	70	
254.71	1	0	26	1766.40	1	0	48	3894.65	1	0	70	

302.68	1	0	26	1800.00	2	1	49	3906.29	1	0	71
325.80	1	0	27	1800.00	1	0	50	3912.61	1	0	71
388.24	1	0	27	1899.30	1	0	50	3920.00	1	0	72
409.77	1	0	28	1935.51	1	0	50	4000.00	1	0	72
425.75	1	0	28	1950.00	1	0	51	4103.52	1	0	73
466.10	1	0	29	1951.30	1	0	51	4140.00	1	0	73
518.00	1	0	29	1965.21	1	0	52	4180.00	1	0	74
528.83	1	0	30	1973.90	1	0	52	4200.00	1	0	74
599.16	1	0	30	2000.00	3	1	54	4320.00	1	0	75
605.53	1	0	30	2048.94	1	0	54	4383.40	1	0	75
627.03	1	0	31	2160.00	1	0	55	4542.22	1	0	75
540.00	1	0	31	2210.00	1	0	55	4609.03	1	0	76
534.39	1	0	32	2370.21	1	0	55	4623.53	1	0	76
702.99	1	0	32	2400.00	1	0	56	4630.57	1	0	77
707.69	1	0	33	2500.00	1	0	56	4658.75	1	0	77
768.00	1	0	33	2550.00	1	0	57	4680.00	1	0	78
776.38	1	0	34	2579.27	1	0	57	4734.16	1	0	78
902.56	1	0	34	2675.98	1	0	58	4736.23	1	0	79
549.57	1	0	35	2694.81	1	0	58	4750.21	1	0	79
553.85	1	0	35	2750.00	1	0	59	4793.29	1	0	80
556.10	1	0	35	2789.43	1	0	59	4800.00	2	1	80
559.17	1	0	36	2792.15	1	0	60	4883.21	1	0	81
577.27	1	0	36	2896.24	1	0	60	4893.82	1	0	81
1022.95	1	0	37	2988.68	1	0	60	5027.53	1	0	82
1043.12	1	0	37	3060.00	1	0	61	5149.67	1	0	82
1080.00	1	0	38	3080.00	1	0	61	5280.00	1	0	83
1113.41	1	0	38	3189.15	1	0	62	5299.72	1	0	83

VALUE	FREQ	CUM	PERC	PERC	VALUE	FREQ	CUM	PERC	PERC	VALUE	FREQ	CUM	PERC	PERC
5500.00	2	1	84	7144.89	1	0	80	10213.12	1	0	95	5	0	95
5407.80	1	0	85	7247.19	1	0	80	10625.54	1	0	95	5	0	95
5144.16	1	0	95	8000.00	1	0	90	10800.00	1	0	95	5	0	95
5231.27	1	0	95	8507.91	1	0	91	11153.91	1	0	96	5	0	96
5418.50	1	0	96	9113.68	1	0	91	15830.86	1	0	97	5	0	97
5561.92	1	0	96	9155.64	1	0	92	16204.46	1	0	97	5	0	97
5600.00	1	0	87	9360.24	1	0	92	16475.00	1	0	98	5	0	98
5720.00	1	0	97	9454.55	1	0	93	17948.49	1	0	98	5	0	98
5774.75	1	0	98	9533.79	1	0	93	22307.82	1	0	99	5	0	99
5864.94	1	0	98	9750.00	1	0	94	22604.62	1	0	99	5	0	99
5983.25	1	0	99	10000.00	1	0	94	32400.00	1	0	100	5	0	100
5999.43	1	0	99	10120.00	1	0	95	73920.00	1	0	100	5	0	100

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 4.00 OCCURRENCES

143	1760	*****
53	5280	*****
13	8800	***
3	12320	*
3	15840	*
1	19360	
2	22880	*
0	26400	
0	29920	
1	33440	
0	36960	
0	40480	
0	44000	
0	47520	
0	51040	
0	54560	
0	58080	
0	61600	
0	65120	
0	68640	
1	72160	

I + I + I + I + I + I + I
0 40 80 120 160 200

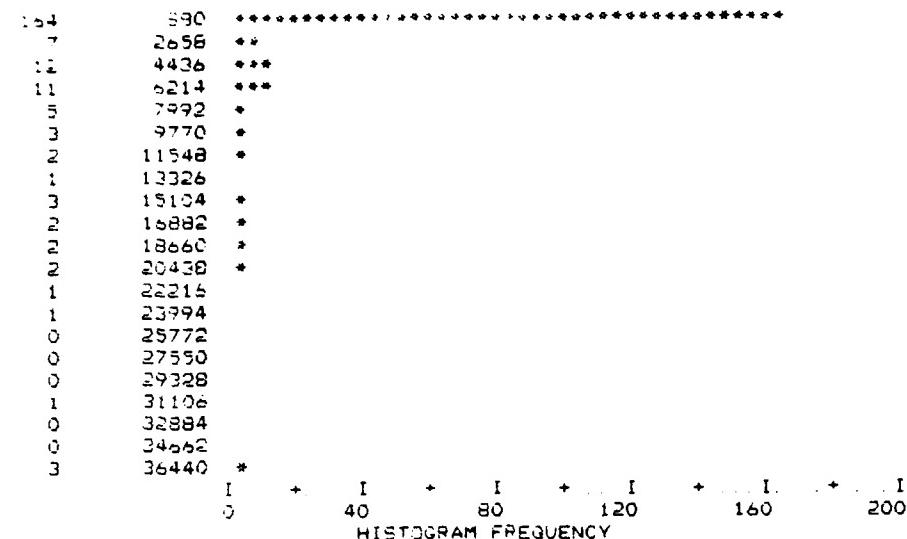
HISTOGRAM FREQUENCY

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	211.964	33.30	774.154
50.00	1917.405	66.70	3557.566	75.00	4502.516
90.00	7924.719				
VALID CASES	220	MISSING CASES	0		

1974-1975 MASONIC STATE

VALUE	FREQ	CUM PCT	CUM PCT	VALUE	FREQ	CUM PCT	CUM PCT	VALUE	FREQ	CUM PCT	CUM PCT		
0 0	107	49	49	423	84	1	0	55	5153	75	1	0	82
13 58	1	0	49	432	63	1	0	56	5187	00	1	0	83
32 50	1	0	50	452	81	1	0	56	5220	00	1	0	83
65 84	1	0	50	455	19	1	0	57	5400	00	1	0	84
58 44	1	0	50	456	60	1	0	57	5495	16	1	0	84
30 57	1	0	51	488	73	1	0	58	5518	68	1	0	85
114 94	1	0	51	546	09	1	0	58	5743	20	1	0	85
129 43	1	0	52	570	57	1	0	59	6068	64	1	0	85
144 88	1	0	52	570	73	1	0	59	6176	64	1	0	86
148 30	1	0	53	575	84	1	0	60	6264	00	1	0	86
159 32	1	0	53	581	40	1	0	60	6320	93	1	0	87
171 17	1	0	54	635	06	1	0	60	6450	57	1	0	87
175 59	1	0	54	698	08	1	0	61	6858	67	1	0	88
184 02	1	0	55	700	28	1	0	61	7060	39	1	0	88
218 98	1	0	55	744	36	1	0	62	7114	22	1	0	89
226 10	1	0	55	769	86	1	0	62	7678	79	1	0	89
241 39	1	0	56	846	15	1	0	63	8409	14	1	0	90
248 96	1	0	56	1055	50	1	0	63	8534	88	2	1	90
249 60	1	0	57	1092	18	1	0	64	9172	77	1	0	91
259 82	1	0	57	1142	49	1	0	64	9600	84	1	0	91
264 71	1	0	58	1240	00	1	0	65	9754	74	1	0	92
270 09	1	0	58	1824	25	1	0	65	11622	71	1	0	92
272 73	1	0	59	1840	00	1	0	66	12293	20	1	0	93
283 15	1	0	59	2076	61	1	0	66	13660	61	1	0	93
285 23	1	0	60	2171	72	1	0	66	14708	57	1	0	94
290 97	1	0	60	2504	26	1	0	67	14800	00	1	0	94
305 35	1	0	60	2900	30	1	0	67	15470	54	1	0	95
322 78	1	0	61	3106	12	1	0	68	16103	96	1	0	95
340 30	1	0	61	3555	19	1	0	68	17433	78	1	0	95
343 79	1	0	62	3676	25	1	0	69	17972	08	2	1	96
357 99	1	0	62	3864	20	1	0	69	19620	84	1	0	97
361 17	1	0	63	3920	00	1	0	70	20953	00	1	0	97
363 77	1	0	63	4530	90	1	0	70	21328	53	1	0	98
356 79	1	0	64	4554	51	1	0	70	23506	43	1	0	98
370 34	1	0	64	4555	82	1	0	71	30289	05	1	0	99
387 93	1	0	65	4805	58	1	0	71	36448	13	1	0	99
396 43	1	0	65	5025	34	1	0	72	37320	26	2	1	100

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 4.00 OCCURRENCES

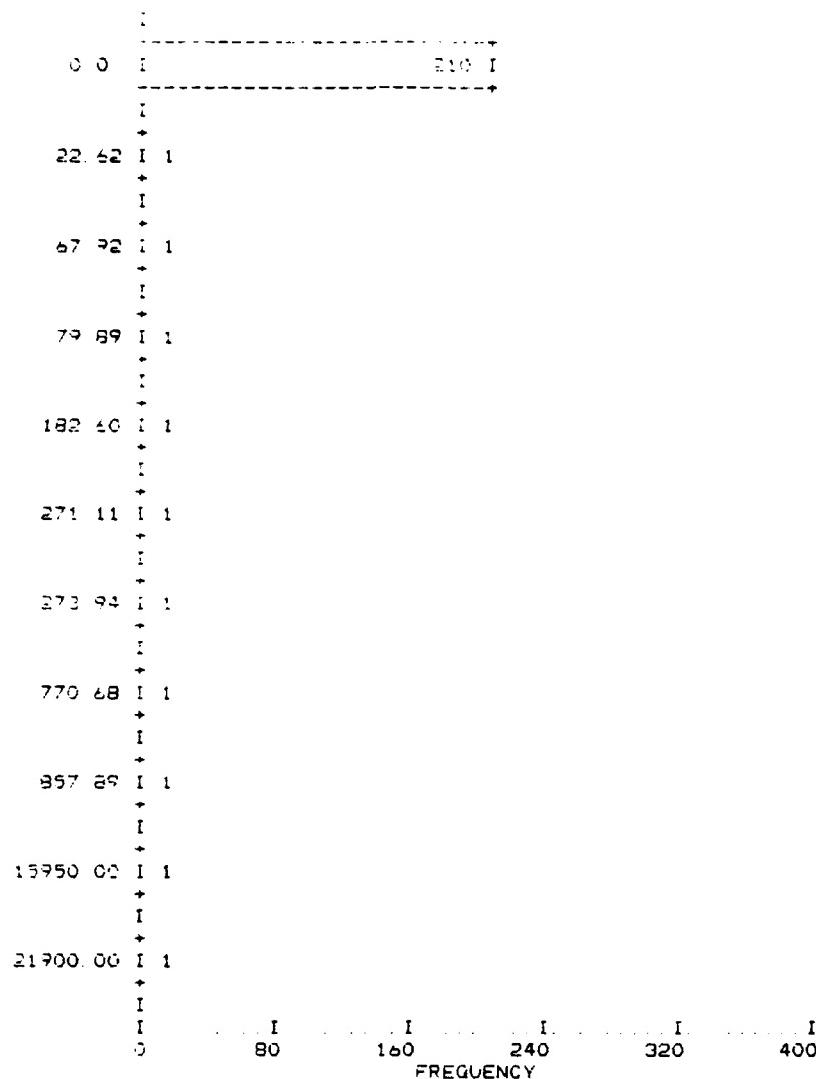


MEAN	2765.735	STD ERR	428.614	MEDIAN	67.141
MODE	0.0	STD DEV	6357.366	VARIANCE	40416106.1
KURTOSIS	12.781	S E KURT	1.991	SKEWNESS	3.368
S E SKEW	164	RANGE	37320.256	MINIMUM	0.0
MAXIMUM	37320.256	SUM	508461.756		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	57.141	66.70	455.765	75.00	1836.062
90.00	8534.883				
VALID CASES	220	MISSING CASES	0		

Value Labels for Variable: V142

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID	L.M.
				PERCENT	PERCENT
0.0	210	95.5	95.5	95.5	95.5
22.62	1	5	5	5	95.9
67.92	1	5	5	5	96.4
79.89	1	5	5	5	96.8
182.60	1	5	5	5	97.3
271.11	1	5	5	5	97.7
273.94	1	5	5	5	98.2
770.58	1	5	5	5	98.6
857.89	1	5	5	5	99.1
15950.00	1	5	5	5	99.5
21900.00	1	5	5	5	100.0
TOTAL	220	100.0	100.0		



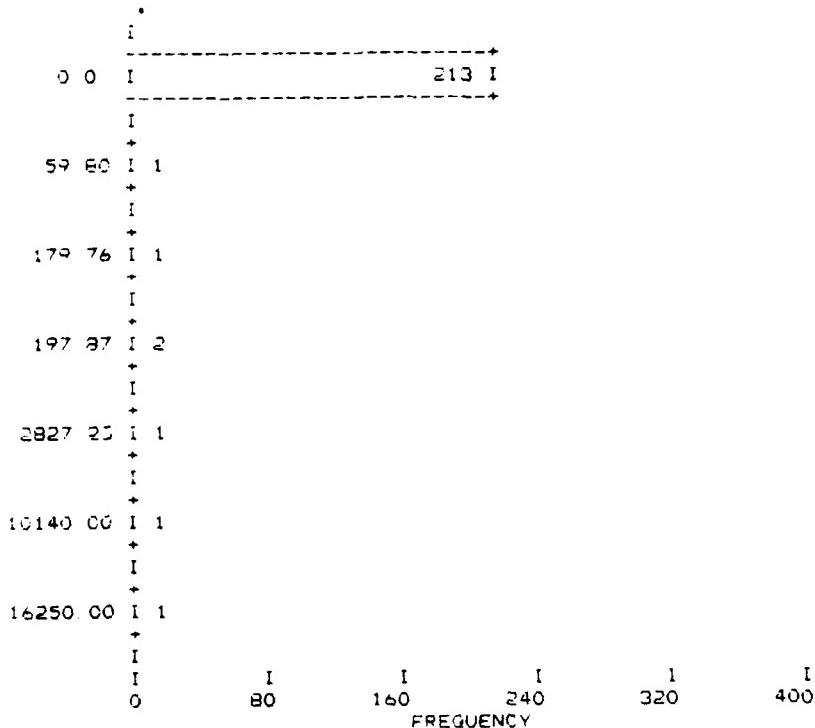
MEAN	163 530	STD ERR	122 933	MEDIAN	0 0
MODE	0 0	STD DEV	1923 376	VARIANCE	3324773 84
SKELETON	117 518	S E KURT	1 991	SKEWNESS	10 763
S E SKEW	164	RANGE	21900 000	MINIMUM	0 0
MAXIMUM	21900 000	SUM	40376 656		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10 00	0 0	25 00	0 0	33 30	0 0
50 00	0 0	66 70	0 0	75 00	0 0
90 00	0 0				

VALID CASES 220 MISSING CASES 0

VALID CASES ANALYZED SURFACE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
0 0	213	96.8	96.8	96.8	96.8
59 80	1	.5	.5	.5	97.3
179 76	1	.5	.5	.5	97.7
197 87	2	1.0	1.0	1.0	98.6
2827 23	1	.5	.5	.5	99.1
10140 00	1	.5	.5	.5	99.5
16250 00	1	.5	.5	.5	100.0
		-----	-----	-----	
	TOTAL	220	100.0	100.0	



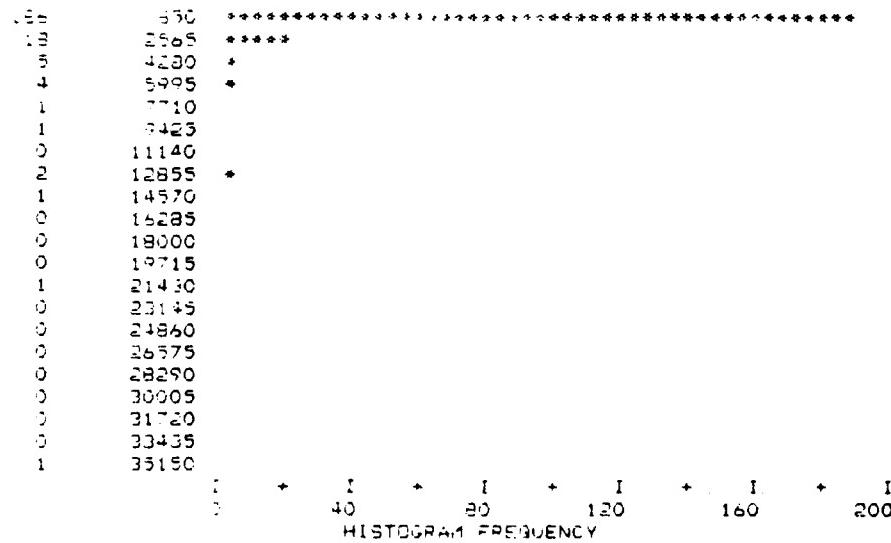
MEAN 135.593 STD ERR 57.744 MEDIAN 0.0
 MODE 0.0 STD DEV 1301.455 VARIANCE 1693784.06
 KURTOSIS 123.733 S E KURT 1.991 SKEWNESS 10.880
 S E SKEW 164 RANGE 16250.000 MINIMUM 0.0
 MAXIMUM 16250.000 SUM 29852.515

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	0.0	75.00	0.0
90.00	0.0				
VALID CASES		MISSING CASES	0		

10-1050 10-1050 OTHER MATERIALS

VALUE	FREQ	PCT	PCT	VALUE	FREQ	PCT	PCT	VALUE	FREQ	PCT	PCT
3 6	108	49	49	311 32	1	0	56	1360.00	1	0	93
24 12	1	0	50	316 45	1	0	56	1511.51	1	0	83
25 76	1	0	50	345 66	1	0	57	1617.78	1	0	84
32 40	1	0	50	373 58	1	0	57	1642.47	1	0	84
37 00	1	0	51	384.00	1	0	58	1683.57	1	0	85
42 20	1	0	51	417 44	1	0	58	1819.92	1	0	85
50 70	1	0	52	418 60	1	0	59	1844.79	1	0	85
55 31	1	0	52	486 32	1	0	59	1861.70	1	0	86
52 29	1	0	53	502 62	1	0	70	1951.55	1	0	86
52 58	1	0	53	542.23	1	0	70	2176.53	2	1	87
65 25	1	0	54	545.45	1	0	70	2236.85	1	0	88
87 87	1	0	54	635.06	1	0	71	2275.00	1	0	88
117 21	1	0	55	650.85	1	0	71	2279.74	2	1	89
121 52	1	0	55	660.00	1	0	72	2374.93	1	0	90
139 51	1	0	55	706.21	1	0	72	2400.00	1	0	90
153 55	1	0	56	730.43	1	0	73	2586.88	1	0	90
175 51	1	0	56	756.71	1	0	73	2700.00	1	0	91
183 39	1	0	57	774.46	1	0	74	2750.00	1	0	91
192 00	1	0	57	776.18	1	0	74	3000.00	1	0	92
192 31	1	0	58	780.00	1	0	75	3204.47	1	0	92
200 00	1	0	58	795.38	1	0	75	3213.00	1	0	93
205 60	1	0	59	806.72	1	0	75	3500.00	1	0	93
207 47	1	0	59	816.75	1	0	76	3674.66	1	0	94
208 70	1	0	60	826.49	1	0	76	3919.79	1	0	94
227 90	1	0	60	835.98	1	0	77	4709.53	1	0	95
236 50	1	0	60	855.40	1	0	77	5123.39	1	0	95
240 00	1	0	61	880.00	1	0	78	5600.00	1	0	95
243 90	1	0	61	960.00	1	0	78	6300.00	1	0	96
244 07	1	0	62	969.14	1	0	79	6567.37	1	0	96
255 39	1	0	62	990.00	1	0	79	6797.03	1	0	97
268 97	1	0	63	1015.17	1	0	80	7111.76	1	0	97
287 85	1	0	63	1136.76	1	0	80	9129.55	1	0	98
289 90	1	0	64	1200.00	1	0	80	12566.81	1	0	98
290 57	1	0	64	1252.55	1	0	81	12757.40	1	0	99
293 71	1	0	65	1261.76	1	0	81	14990.83	1	0	99
310 34	1	0	65	1267.50	1	0	82	21151.87	1	0	100
310 95	1	0	65	1300.00	1	0	82	36000.00	1	0	100

10-1050 10-1050 OTHER MATERIALS 34E 3-MILL EQUALS APPROXIMATELY 400 OCCURRENCES



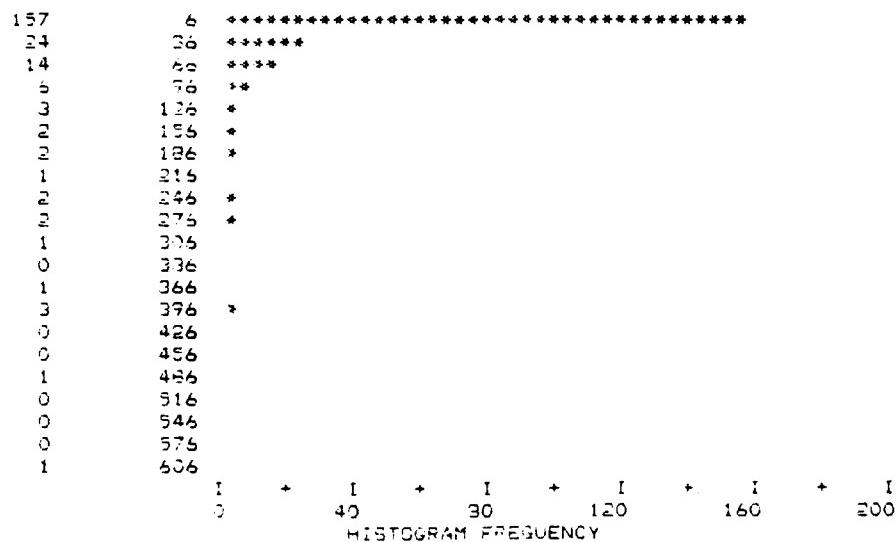
MEAN	1114.728	STD ERR	229.738	MEDIAN	29.082
MODE	0.0	STD DEV	3408.302	VARIANCE	11616523.9
KURTOSIS	56.921	S E KURT	1.991	SKEWNESS	6.702
S E SKEW	164	RANGE	36000.000	MINIMUM	0.0
MAXIMUM	36000.000	SUM	245264.198		
PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	29.082	66.70	357.022	75.00	803.886
90.00	2568.189				
VALID CASES	220	MISSING CASES	0		

Roof material and roof-mounted apparatus items

11-24 CHIMNEY AREA

VALUE	FREQ	CUM PCT	PCT	VALUE	FREQ	CUM PCT	PCT	VALUE	FREQ	CUM PCT	PCT
0.0	105	48	48	34.00	1	0	78	110.00	1	0	91
1.00	1	0	48	40.00	5	2	80	120.00	1	0	92
3.00	6	3	51	46.00	1	0	81	128.00	1	0	92
4.00	9	4	55	48.00	3	1	82	140.00	1	0	93
5.00	3	1	56	54.00	2	1	83	160.00	2	1	94
6.00	6	3	59	56.00	1	0	84	196.00	1	0	94
7.00	2	1	60	57.00	1	0	84	200.00	1	0	95
8.00	3	1	61	60.00	3	1	85	216.00	1	0	95
9.00	1	0	62	62.00	2	1	86	240.00	2	1	96
10.00	3	1	63	64.00	1	0	87	268.00	1	0	96
12.00	5	2	65	65.00	1	0	87	270.00	1	0	97
16.00	7	3	69	72.00	2	1	88	320.00	1	0	97
18.00	3	1	70	80.00	1	0	89	366.00	1	0	98
20.00	3	1	71	86.00	1	0	89	400.00	2	1	99
22.00	1	0	72	88.00	1	0	90	402.00	1	0	99
24.00	8	4	75	96.00	1	0	90	480.00	1	0	100
30.00	3	1	77	102.00	1	0	90	612.00	1	0	100
32.00	2	1	78	108.00	1	0	91				

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 4.00 OCCURRENCES



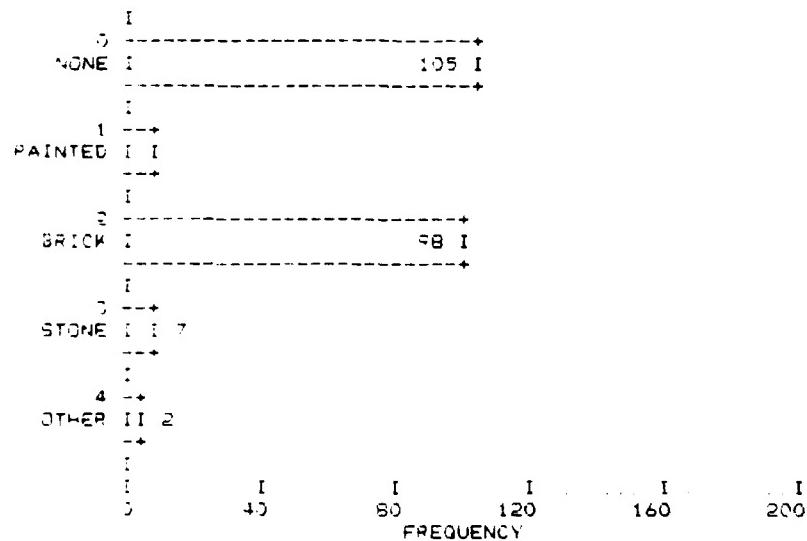
MEAN	15.577	STD ERR	.5.975	MEDIAN	3.000
MODE	0.0	STD DEV	67.150	VARIANCE	7595.131
KURTOSIS	15.827	S E KURT	1.991	SKENNESS	3.751
S E SKW	164	RANGE	512.000	MINIMUM	0.0
MAXIMUM	512.000	SUM	8047.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	3.000	66.70	16.000	75.00	24.000
90.00	101.400				

VALID CASES 220 MISSING CASES 0

DATA 2 - MATERIAL

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	TOTAL PERCENT
ONE	0	105	47.7	47.7	47.7
PAINTED	1	8	3.6	3.6	51.4
BRICK	2	98	44.5	44.5	95.9
STONE	3	7	3.2	3.2	99.1
OTHER	4	2	9	9	100.0
<hr/>					
	TOTAL	220	100.0	100.0	



MEAN	1.059	STD ERR	.072	MEDIAN	1.000
MODE	0.0	STD DEV	1.065	VARIANCE	1.133
KURTOSIS	-1.369	S E KURT	1.991	SKENNESS	225
S E SKW	164	RANGE	4.000	MINIMUM	0.0
MAXIMUM	4.000	SUM	233.000		

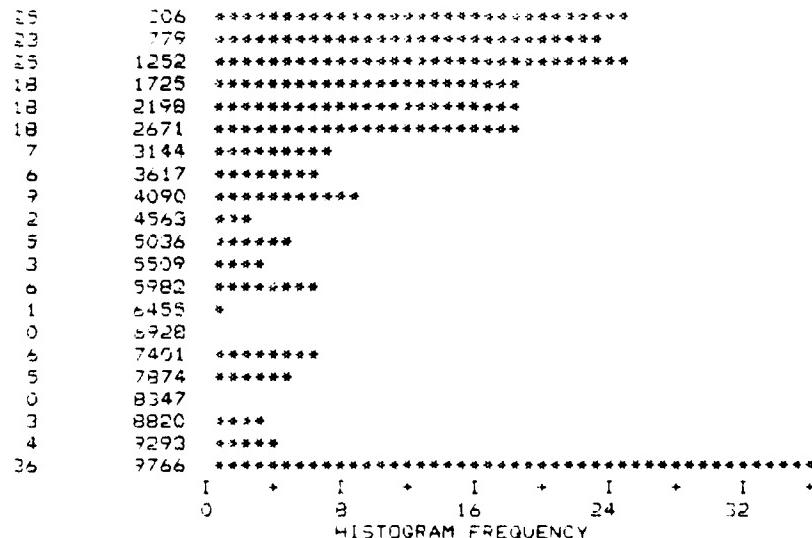
PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	1.000	66.70	2.000	75.00	2.000
90.00	2.000				

VALID CASES 220 MISSING CASES 0

Table 4. FREQUENCY DISTRIBUTION

VALUE	FREQ	FCT	CUM	VALUE	FREQ	FCT	CUM	VALUE	FREQ	FCT	CUM
72	1	0	0	1440	1	0	02	3400	1	0	51
100	1	0	1	1453	1	0	33	3480	1	0	52
150	1	0	1	1470	1	0	33	3510	1	0	52
200	1	0	2	1500	4	2	35	3550	1	0	53
225	1	0	2	1594	1	0	35	3600	2	1	64
240	1	0	3	1600	1	0	26	3870	1	0	64
270	1	0	3	1680	1	0	26	3900	2	1	65
375	3	1	5	1700	1	0	37	3942	1	0	65
400	3	1	5	1750	1	0	37	4040	1	0	66
450	3	1	7	1800	2	1	28	4100	1	0	66
480	2	1	8	1950	1	0	39	4136	1	0	67
500	6	3	11	1900	2	1	40	4200	1	0	67
525	1	0	11	1920	1	0	40	4250	1	0	68
573	1	0	12	1926	1	0	40	4500	2	1	69
580	1	0	12	1942	1	0	41	4862	1	0	69
590	6	3	15	1947	1	0	41	4900	1	0	70
670	1	0	15	2000	6	3	44	5100	1	0	70
700	1	0	16	2050	1	0	45	5180	1	0	70
750	2	1	17	2100	1	0	45	5200	1	0	71
800	4	2	19	2113	1	0	45	5305	1	0	71
840	1	0	19	2150	2	1	46	5500	1	0	72
872	1	0	20	2200	2	1	47	5600	1	0	72
900	2	1	20	2250	2	1	48	5750	1	0	73
975	1	0	21	2300	2	1	49	5760	4	2	75
990	1	0	21	2400	1	0	50	6201	1	0	75
1000	1	0	22	2475	1	0	50	6480	1	0	75
1039	1	0	22	2490	1	0	50	7200	2	1	76
1040	1	0	23	2500	5	3	53	7500	1	0	77
1100	1	0	23	2625	1	0	54	7569	3	1	78
1156	1	0	24	2640	1	0	54	7822	1	0	79
1200	5	2	26	2700	3	1	55	8100	4	2	80
1212	1	0	26	2750	1	0	56	8600	1	0	81
1225	1	0	27	2777	1	0	56	8640	1	0	81
1250	1	0	27	2800	3	1	58	9000	1	0	82
1280	1	0	28	2950	1	0	58	9350	2	1	83
1335	1	0	28	2960	1	0	59	9390	1	0	83
1350	2	1	29	3000	1	0	59	9500	1	0	84
1360	2	1	30	3100	1	0	60	9600	1	0	84
1370	1	0	30	3150	1	0	60	9900	1	0	85
1385	1	0	31	3240	1	0	60	9999	34	15	100
1400	2	1	32	3300	1	0	61				

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 80 OCCURRENCES

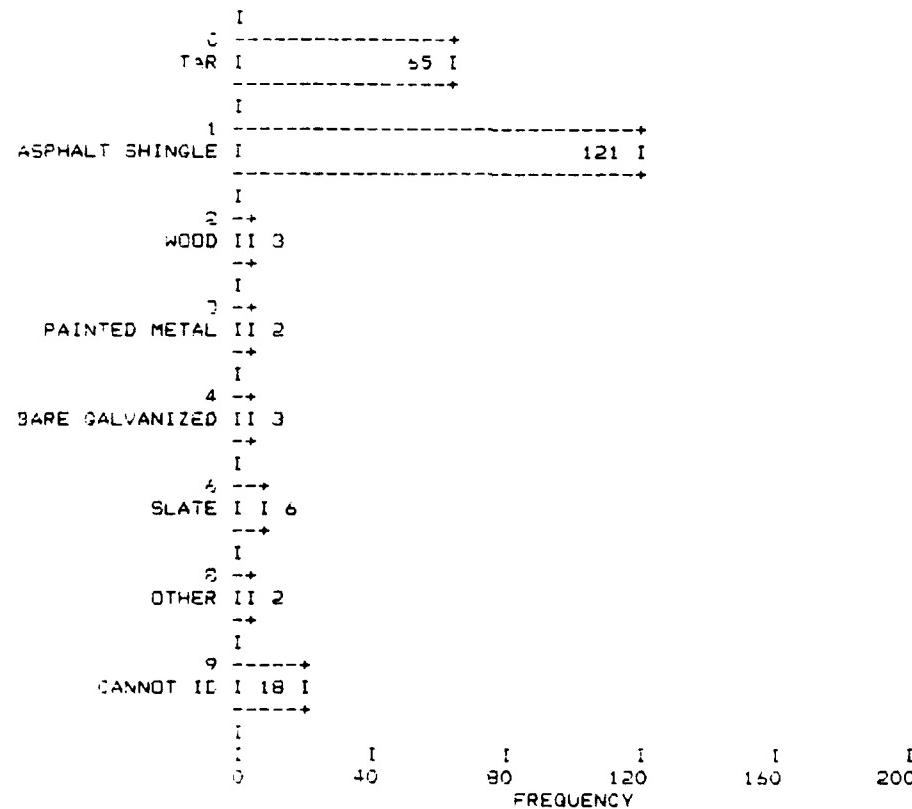


MEAN	3887.059	STD ERR	233.063	MEDIAN	2482.500
MODE	9999.000	STD DEV	3456.889	VARIANCE	11950084.7
SKEWNESS	.983	S E KURT	1.991	SKEWNESS	.818
S E SKEW	.164	RANGE	9927.000	MINIMUM	72.000
MAXIMUM	9999.000	SUM	855153.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	500.000	25.00	1200.000	33.30	1487.790
50.00	2482.500	66.70	4162.048	75.00	6410.250
90.00	9999.000				
VALID CASES	220	MISSING CASES	0		

1.147 - ROOF MATERIAL TYPE

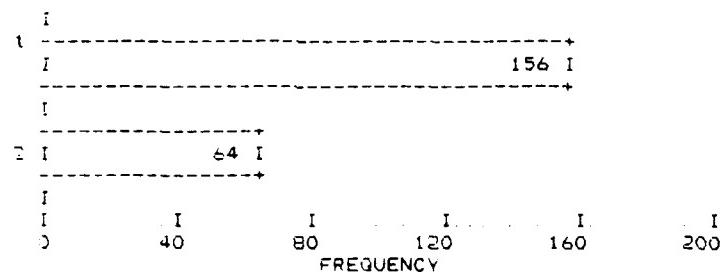
VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
TAR	0	65	29.5	29.5	29.5
ASPHALT SHINGLE	1	121	55.0	55.0	84.5
WOOD	2	3	1.4	1.4	85.9
PAINTED METAL	3	2	.9	.9	86.8
BARE GALVANIZED	4	3	1.4	1.4	88.2
SLATE	5	6	2.7	2.7	90.9
OTHER	8	2	.9	.9	91.8
CANNOT ID	9	18	8.2	8.2	100.0
		-----	-----	-----	-----
	TOTAL	220	100.0	100.0	



MEAN	1 932	STD ERR	.071	MEDIAN	1 000
MODE	1 000	STD DEV	.542	VARIANCE	.452
KURTOSIS	3 502	S E KURT	1 991	SKEWNESS	.230
S E SKEW	1e4	RANGE	9 000	MINIMUM	0 0
MAXIMUM	9 000	SUM	359 000		
PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10 00	0 0	25 00	0 0	33 30	1 000
50 00	1 000	66 70	1 000	75 00	1 000
90 00	6 000				
VALID CASES	220	MISSING CASES	0		

TABLE 1. CALCULATOR 400F PROFILE

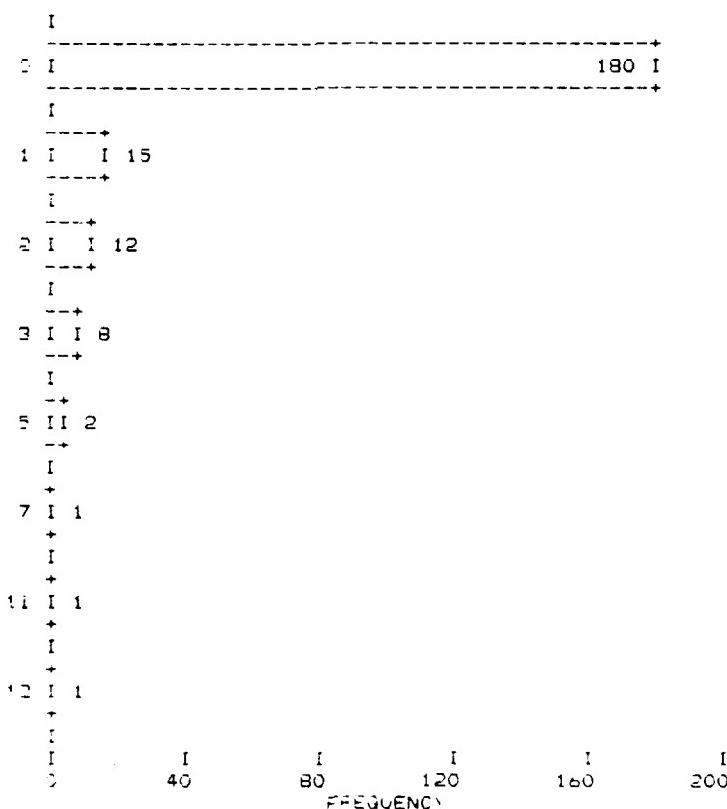
VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
1	156	70 9	70 9	70 9	70 9
2	64	29 1	29 1	29 1	100 0
TOTAL	220	100 0	100 0		



MEAN	1 291	STD ERR	.031	MEDIAN	1 000
MODE	1 000	STD DEV	.455	VARIANCE	.207
KURTOSIS	-1 151	S E KURT	1 991	SKEWNESS	.927
S E SKEW	1e4	RANGE	1 000	MINIMUM	1 000
MAXIMUM	2 000	SUM	284 000		
PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10 00	1 000	25 00	1 000	33 30	1 000
50 00	1 000	66 70	1 000	75 00	2 000
90 00	2 000				
VALID CASES	220	MISSING CASES	0		

1000 OF VENTILATION STACKS

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	0	180	81.8	81.8	81.8
	1	15	6.8	6.8	88.6
	2	12	5.5	5.5	94.1
	3	8	3.6	3.6	97.7
	5	2	0.9	0.9	98.6
	7	1	0.5	0.5	99.1
	11	1	0.5	0.5	99.5
	12	1	0.5	0.5	100.0
	TOTAL	220	100.0	100.0	



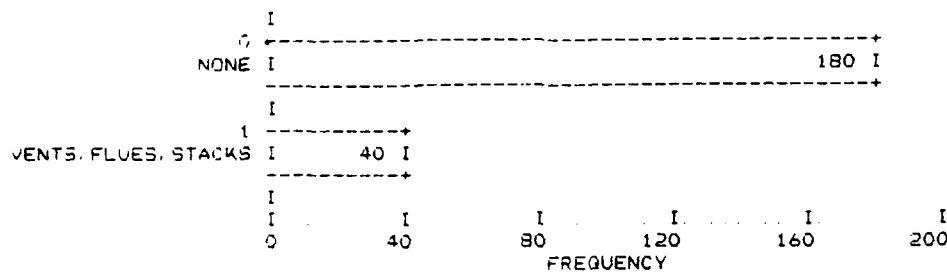
MEAN	46.8	STD. ERR.	.847	MEDIAN	45
VAR.	6.2	STD. DEV.	4.65	VARIANCE	26.58
KURTOSIS	33.574	S.E. KURT.	1.991	SKENNESS	5.186
S.E. SKEN.	1.54	RANGE	12.000	MINIMUM	0
MAXIMUM	12.000	SUM	103.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	0.0	75.00	0.0

ALL ID CASES 220 MISSING CASES 0

1000 LOCATOR 4000 APPARATUS

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NONE	0	180	81.8	81.8	81.8
VENTS, FLUES, STACKS	1	40	18.2	18.2	100.0
		-----	-----	-----	-----
	TOTAL	220	100.0	100.0	



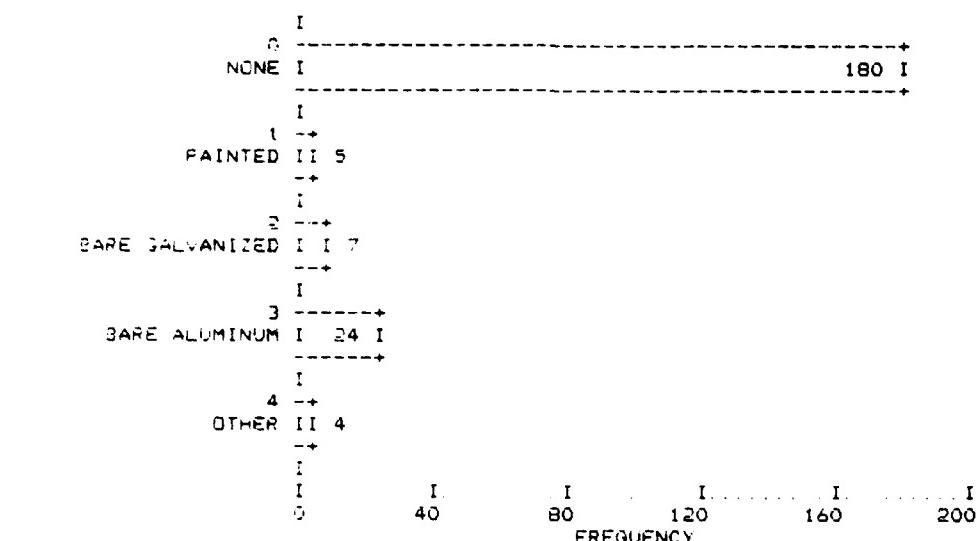
MEAN	182	STD ERR	026	MEDIAN	0 0
MODE	0 0	STD DEV	387	VARIANCE	149
AURTOSIS	767	S E KURT	1 991	SKEWNESS	1 661
S E SKEW	164	RANGE	1 000	MINIMUM	0 0
MAXIMUM	1 000	SUM	40. 000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	0.0	75.00	0.0
90.00	1.000				

VALID CASES: 220 MISSING CASES: 0

1990-1991
Yearbook

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
UNPAINTED	0	180	81.8	81.8	81.8
PAINTED	1	5	2.3	2.3	84.1
BARE GALVANIZED	2	7	3.2	3.2	87.3
BARE ALUMINUM	3	24	10.9	10.9	98.2
OTHER	4	4	1.8	1.8	100.0
<hr/>					
	TOTAL	220	100.0	100.0	

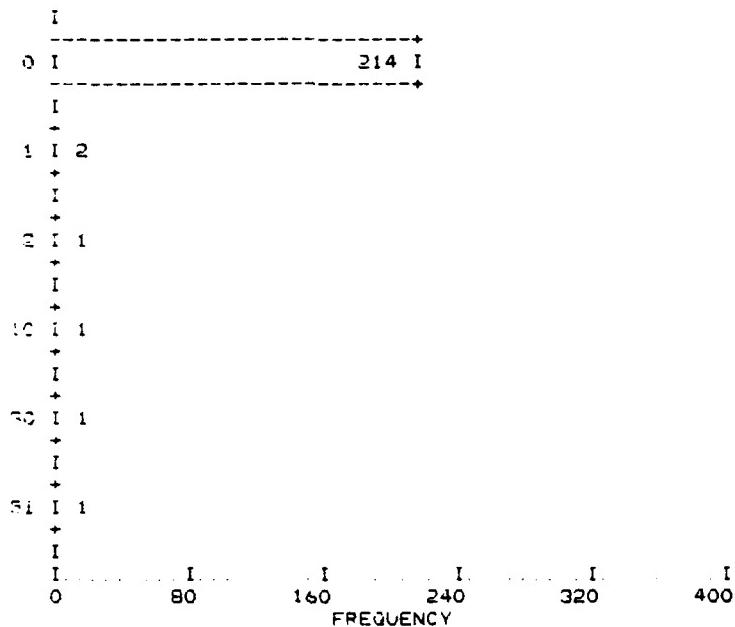


MEAN	484	STD ERR	074	MEDIAN	0.0
MODE	0.0	STD DEV	1.092	VARIANCE	1.192
KURTOSIS	2.296	S E KURT	1.991	SKEWNESS	1.980
S E SKEW	164	RANGE	4.000	MINIMUM	0.0
MAXIMUM	4.000	SUM	107.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	0.0	75.00	0.0
90.00	3.000				
VALID CASES	200	MISSING CASES	0		

Fig. 1. A photograph of the same area as Fig. 1, but taken at a later date.

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	SUM PERCENT
	0	214	97.3	97.3	97.3
	1	2	.9	.9	98.2
	2	1	.5	.5	98.6
	10	1	.5	.5	99.1
	30	1	.5	.5	99.5
	51	1	.5	.5	100.0
	TOTAL	220	100.0	100.0	



MEAN	432	STD ERR	272	MEDIAN	0 0
MODE	0 0	STD DEV	4 035	VARIANCE	16 283
KURTOSIS	126 380	S E KURT	1 991	SKEWNESS	10 942
S E SKEW	164	RANGE	51 000	MINIMUM	0 0
MAXIMUM	51 000	SUM	95 000		

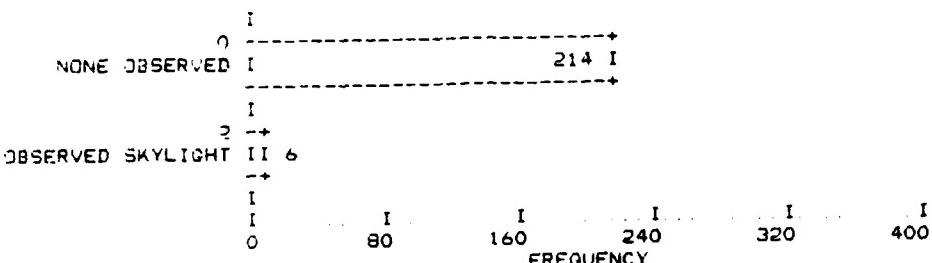
ITEM2 - 100% DAYLIGHTS

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10 00	0 0	25 00	0 0	33 30	0 0
50 00	0 0	66 70	0 0	75 00	0 0
90 00	0 0				

VALID CASES 220 MISSING CASES 0

SECTION 1. SKYLIGHT

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NONE OBSERVED	0	214	97.3	97.3	97.3
OBSERVED SKYLIGHT	2	6	2.7	2.7	100.0
TOTAL		220	100.0	100.0	



	MEAN	STD ERR	STD DEV	MEDIAN	VARIANCE
MODE	0.0		326		107
AURTOSIS	32.455		S E KURT	1.991	SKEWNESS
S E SKEW	164		RANGE	2.000	MINIMUM
MAXIMUM	2.000		SUM	12.000	0.0

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	0.0	75.00	0.0
90.00	0.0				

VALID CASES 220 MISSING CASES 0

SECTION 2. SKYLIGHT MATERIAL

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NO MATERIAL	0	214	97.3	97.3	97.3
PAINTED	1	1	.5	.5	97.7
BARE GALVANIZE	2	2	.9	.9	98.6
BARE ALUMINUM	3	1	.5	.5	99.1
OTHER	4	2	.9	.9	100.0
TOTAL		220	100.0	100.0	

NO MATERIAL I 214
 PAINTED I 1
 BARE GALVANIZE I 2
 BARE ALUMINUM I 1
 OTHER I 2

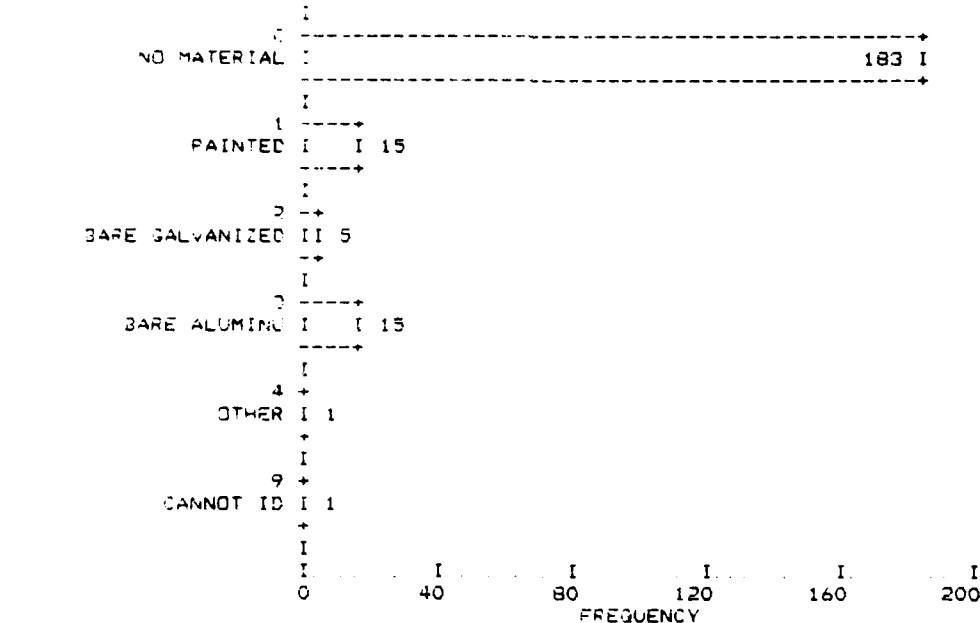
I	I	I	I	I	I
0	80	160	240	320	400
FREQUENCY					

MEAN .073 STD ERR .032 MEDIAN 0.0
 MODE 0.0 STD DEV .472 VARIANCE .223
 KURTOSIS 51.463 S E KURT 1.991 SKEWNESS 7.057
 S E SKEW .164 RANGE 4.000 MINIMUM 0.0
 MAXIMUM 4.000 SUM 16.000

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	56.70	0.0	75.00	0.0
90.00	0.0				

VALID CASES 220 MISSING CASES 0

VALUE LABEL	VALUE	FREQUENCY	VALID PERCENT	CUM PERCENT
NO MATERIAL	0	183	83.2	83.2
PAINTED	1	15	6.8	90.0
BARE GALVANIZED	2	5	2.3	92.3
BARE ALUMINU	3	15	6.8	99.1
OTHER	4	1	.5	99.5
CANNOT ID	9	1	.5	100.0
<hr/>				
	TOTAL	220	100.0	100.0



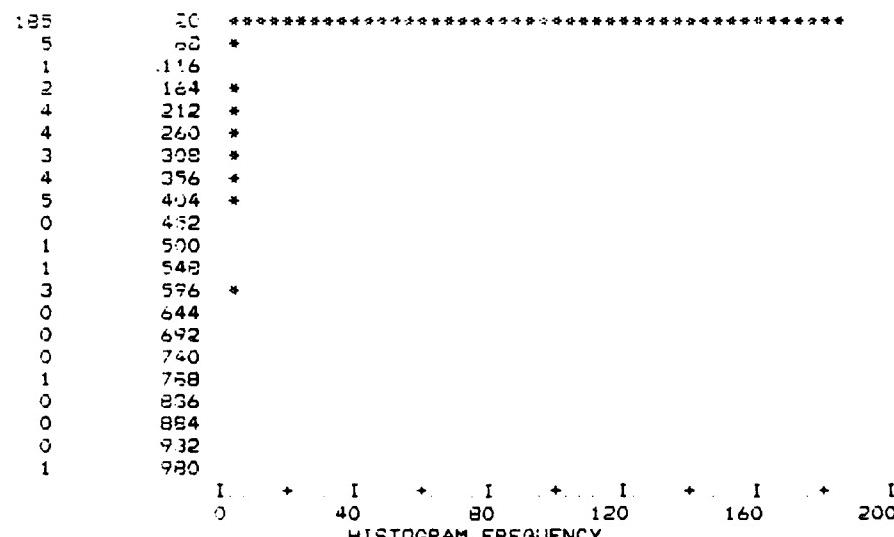
MEAN	377	STD ERR	.070	MEDIAN	0 0
MODE	0 0	STD DEV	1 037	VARIANCE	1 076
KURTOSIS	23 097	S E KURT	1 991	SKEWNESS	4.022
S E SKEW	164	RANGE	9 000	MINIMUM	0 0
MAXIMUM	9 000	SUM	83 000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	0.0	75.00	0.0
90.00	1.900				
VALID CASES	220	MISSING CASES	0		

FREQUENCY DISTRIBUTION

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	0	183	63.2	83.2	83.2
	1	1	5	5	83.6
	5	1	5	5	84.1
	60	1	5	5	84.5
	80	3	1.4	1.4	85.9
	90	1	5	5	86.4
	100	1	5	5	86.8
	150	2	9	9	87.7
	200	2	9	9	88.6
	210	1	5	5	89.1
	220	1	5	5	89.5
	260	2	9	9	90.5
	265	1	5	5	90.9
	280	1	5	5	91.4
	290	2	9	9	92.3
	320	1	5	5	92.7
	348	2	9	9	93.6
	350	1	5	5	94.1
	368	1	5	5	94.5
	400	3	1.4	1.4	95.9
	408	1	5	5	96.4
	420	1	5	5	96.8
	480	1	5	5	97.3
	560	1	5	5	97.7
	600	3	1.4	1.4	99.1
	806	1	5	5	99.5
	999	1	5	5	100.0
	TOTAL	220	100.0	100.0	

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 4.00 OCCURRENCES



I + I + I + I + I + I
 0 40 80 120 160 200

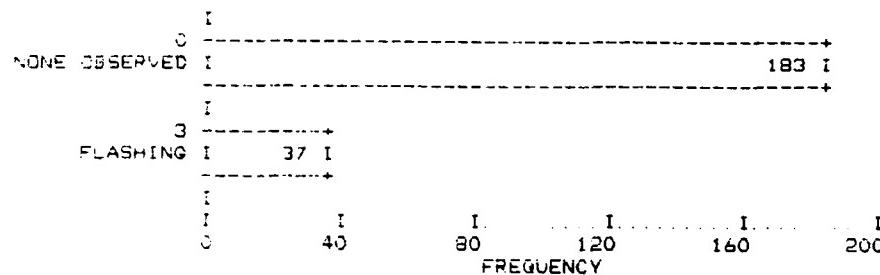
HISTOGRAM FREQUENCY

MEAN	53.082	STD ERR	9.968	MEDIAN	0.0
MODE	0.0	STD DEV	147.855	VARIANCE	21861.162
KURTOSIS	12.901	S E KURT	1.991	SKEWNESS	3.384
S E SKEW	164	RANGE	999.000	MINIMUM	0.0
MAXIMUM	999.000	SUM	11678.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	0.0	75.00	0.0
90.00	260.000				
VALID CASES	220	MISSING CASES	0		

APPFL INDICATOR: FLASHING

VALUE	VALID	VALUE	N	VALID	CUM
			PERCENT	PERCENT	PERCENT
NONE OBSERVED	0	183	83.2	83.2	83.2
FLASHING	3	37	16.8	16.8	100.0
		TOTAL	220	100.0	100.0



MEAN	505	STD ERR	.076	MEDIAN	0.0
MODE	0.0	STD DEV	1.125	VARIANCE	1.265
KURTOSIS	1.002	S E KURT	1.991	SKEWNESS	1.787
S E SKEW	1.64	RANGE	3.000	MINIMUM	0.0
MAXIMUM	3.000	SUM	111.000		

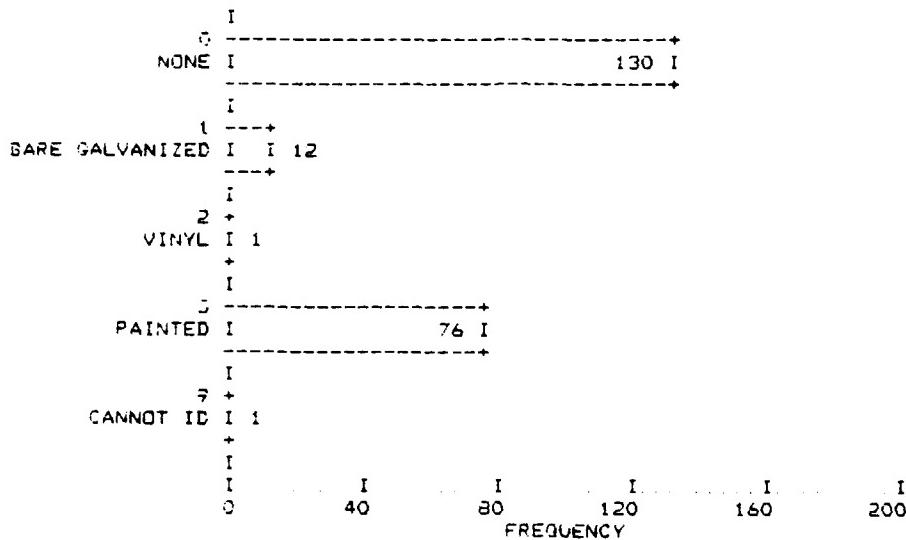
PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	0.0	75.00	0.0
90.00	3.000				
VALID CASES	220	MISSING CASES	0		

Rain gutters, downspouts and fences

13147 RAIN GUTTER MATERIAL

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NONE	0	130	59.1	59.1	59.1
BARE GALVANIZED	1	12	5.5	5.5	64.5
VINYL	2	1	0.5	0.5	65.0
PAINTED	3	76	34.5	34.5	99.5
CANNOT ID	9	1	0.5	0.5	100.0

	TOTAL	220	100.0	100.0	



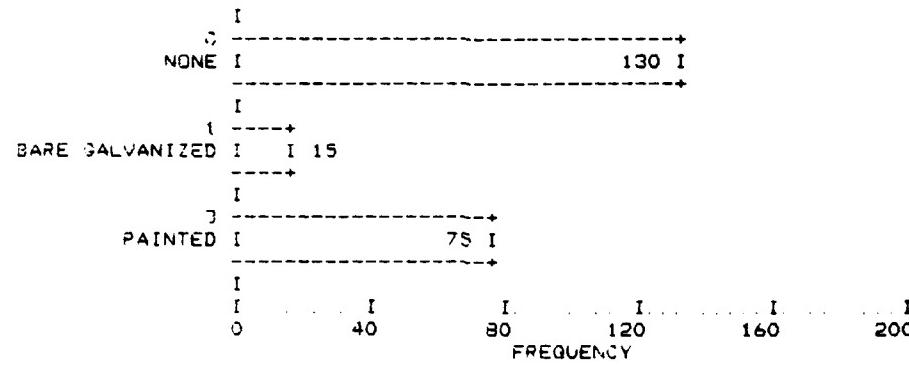
Statistic	Value
MEAN	1.141
MODE	0.0
KURTOSIS	1.507
S E SKEW	1.164
MAXIMUM	9.000
STD ERR	1.101
STD DEV	1.503
S E KURT	1.991
RANGE	9.000
SUM	251.000
VARIANCE	2.259
SKENNESS	1.061
MINIMUM	0.0

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	3.000	75.00	3.000
90.00	3.000				

VALID CASES 220 MISSING CASES 0

REPORT MATERIALS OF DOWNSPOUT

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NONE	0	130	59.1	59.1	59.1
BARE GALVANIZED	1	15	6.8	6.8	65.9
PAINTED	3	75	34.1	34.1	100.0
	TOTAL	220	100.0	100.0	



Statistic	Value	Statistic	Value	Statistic	Value
MEAN	1.091	STD ERR	.094	MEDIAN	0.0
MODE	0.0	STD DEV	1.398	VARIANCE	1.955
KURTOSIS	-1.592	S E KURT	1.991	SKEWNESS	.595
S E SKEW	1.64	RANGE	3.000	MINIMUM	0.0
MAXIMUM	3.000	SUM	240.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	3.000	75.00	3.000
90.00	3.000				

VALID CASES 220 MISSING CASES 0

207 1.04 FOR 4411 SUTTERS

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	0	130	59.1	59.1	59.1
	20	1	5	5	59.5
	25	3	1.4	1.4	60.9
	30	2	9	9	61.8
	40	5	2.7	2.7	64.5
	45	2	9	9	65.5
	50	5	2.3	2.3	67.7
	60	11	5.0	5.0	72.7
	70	4	1.8	1.8	74.5
	75	2	9	9	75.5
	80	8	3.6	3.6	79.1
	90	5	2.3	2.3	81.4
	95	1	5	5	81.8
	100	8	3.6	3.6	85.5
	105	1	5	5	85.9
	110	3	1.4	1.4	87.3
	120	1	5	5	87.7
	130	2	9	9	88.6
	140	3	1.4	1.4	90.0
	155	1	5	5	90.5
	160	1	5	5	90.9
	168	1	5	5	91.4
	170	2	9	9	92.3
	180	1	5	5	92.7
	200	3	1.4	1.4	94.1
	220	2	9	9	95.0
	230	1	5	5	95.5
	240	1	5	5	95.9
	260	1	5	5	96.4
	270	1	5	5	96.8
	290	1	5	5	97.3
	300	1	5	5	97.7
	360	1	5	5	98.2
	420	1	5	5	98.6
	500	1	5	5	99.1
	900	1	5	5	99.5
	999	1	5	5	100.0
	TOTAL	220	100.0	100.0	

10.47 MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 4.10 OCCURRENCES

142	20	*****
37	68	*****
16	116	***
9	164	**
6	212	**
3	260	*
2	308	*
1	356	
1	404	
0	452	
1	500	
0	548	
0	596	
0	644	
0	692	
0	740	
0	788	
0	836	
1	884	
0	932	
1	980	



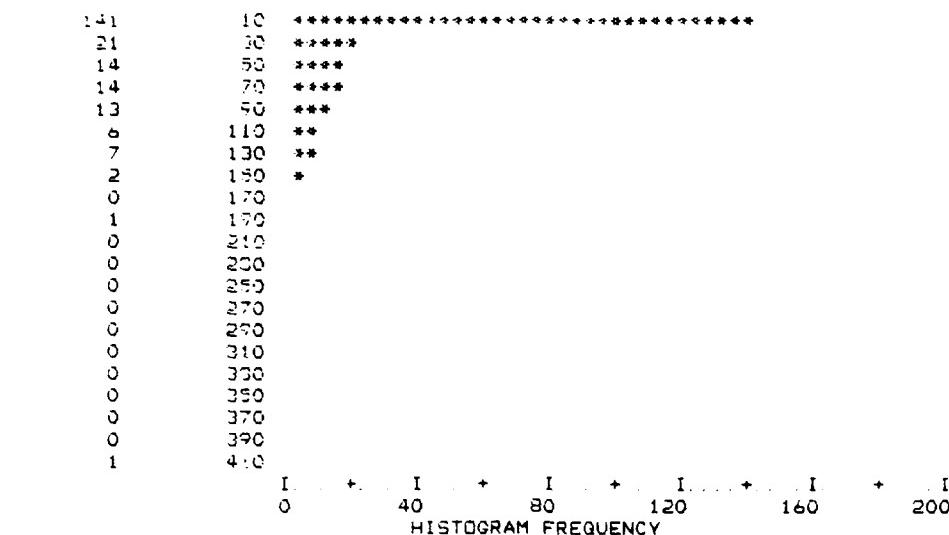
HISTOGRAM FREQUENCY

MEAN	53.895	STD ERR	7.852	MEDIAN	0.0
MODE	0.0	STD DEV	116.467	VARIANCE	13564.551
KURTOSIS	32.539	S E KURT	1.991	SKEWNESS	4.921
S E SKEW	164	RANGE	999.000	MINIMUM	0.0
MAXIMUM	999.000	SUM	11857.000		
PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	50.000	75.00	75.000
90.00	153.500				
VALID CASES	220	MISSING CASES	0		

LEVEL 0 - SUMMARY OUTPUT (PART 2)

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
0	130	59.1	59.1	59.1	59.1
10	3	1.4	1.4	60.5	
11	1	.5	.5	60.9	
12	3	1.4	1.4	62.3	
15	3	1.4	1.4	63.6	
16	1	.5	.5	64.1	
20	7	3.2	3.2	67.3	
25	1	.5	.5	67.7	
30	11	5.0	5.0	72.7	
32	1	.5	.5	73.2	
35	1	.5	.5	73.4	
40	7	3.2	3.2	76.8	
42	1	.5	.5	77.3	
50	5	2.3	2.3	79.5	
55	1	.5	.5	80.0	
60	12	5.5	5.5	85.5	
75	2	.9	.9	86.4	
80	10	4.5	4.5	90.9	
90	2	.9	.9	91.8	
98	1	.5	.5	92.3	
100	5	2.3	2.3	94.5	
115	1	.5	.5	95.0	
120	4	1.8	1.8	96.8	
125	2	.9	.9	97.7	
135	1	.5	.5	98.2	
150	2	.9	.9	99.1	
180	1	.5	.5	99.5	
420	1	.5	.5	100.0	
TOTAL	220	100.0	100.0		

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 4.00 OCCURRENCES



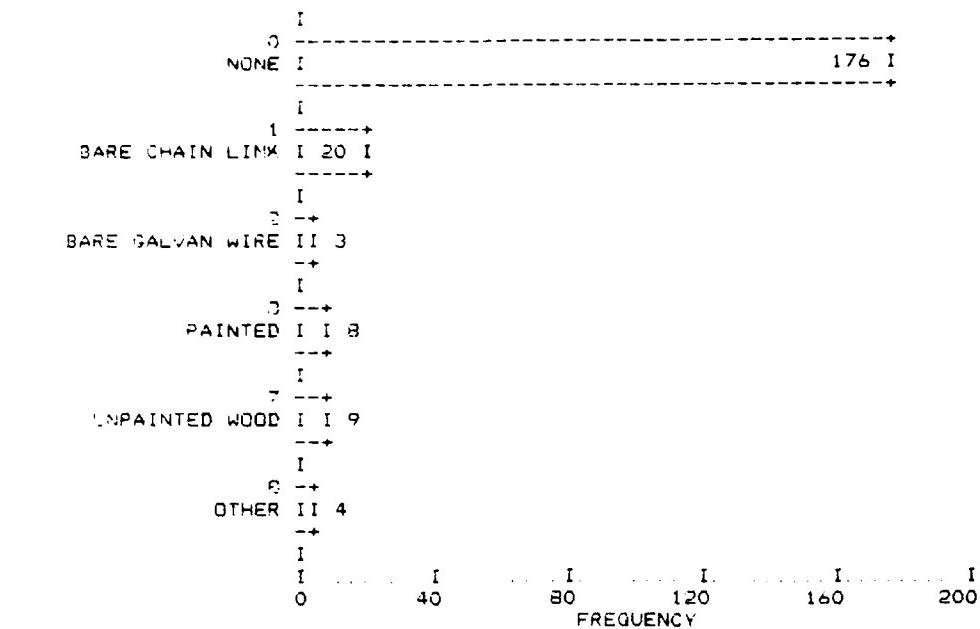
MEAN	25.705	STD ERR	3.119	MEDIAN	0.0
MODE	0.0	STD DEV	46.269	VARIANCE	2140.830
KURTOSIS	23.910	S E KURT	1.991	SKEWNESS	3.690
S E SKEW	164	RANGE	420.000	MINIMUM	0.0
MAXIMUM	420.000	SUM	5655.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	20.000	75.00	40.000
90.00	80.000				

VALID CASES	220	MISSING CASES	0
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ELEC - FENCE TYPE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	TOTAL PERCENT
None	0	178	80.0	80.0	80.0
BARE CHAIN LINK	1	20	9.1	9.1	8.91
BARE GALVAN WIRE	2	3	1.4	1.4	90.5
PAINTED	3	9	3.6	3.6	94.1
UNPAINTED WOOD	7	9	4.1	4.1	98.2
OTHER	8	4	1.8	1.8	100.0
<hr/>					
	TOTAL	220	100.0	100.0	



MEAN	559	STD ERR	121	MEDIAN	0 0
MODE	0 0	STD DEV	1 795	VARIANCE	3 221
KURTOSIS	8 922	S E KURT	1 991	SKEWNESS	3 138
S E SKEW	164	RANGE	8 000	MINIMUM	0 0
MAXIMUM	8 000	SUM	145 000		

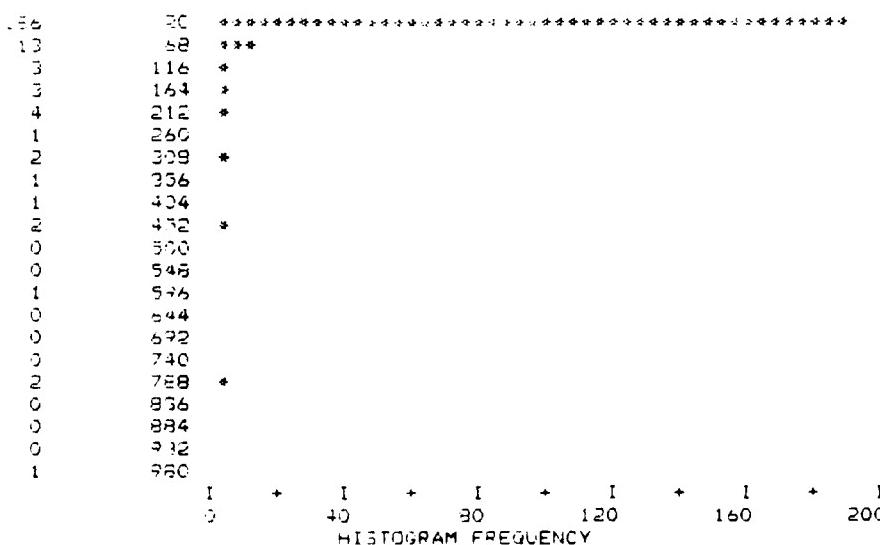
PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10 00	0 0	25 00	3 0	33 30	0 0
50 00	0 0	66 70	0 0	75 00	0 0
90 00	2 000				

VALID CASES 220 MISSING CASES 0

NAME: PERIOD LENGTH

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	ITEM PERCENT
	0	176	80.0	80.0	80.0
	5	1	.5	.5	80.5
	10	1	.5	.5	80.9
	12	1	.5	.5	81.4
	20	2	9	9	82.3
	25	1	.5	.5	82.7
	30	2	9	9	83.6
	35	1	.5	.5	84.1
	40	1	.5	.5	84.5
	50	4	1.8	1.8	86.4
	55	1	.5	.5	86.8
	60	1	.5	.5	87.3
	70	1	.5	.5	87.7
	75	2	9	9	88.6
	80	1	.5	.5	89.1
	85	2	9	9	90.0
	90	1	.5	.5	90.5
	100	2	9	9	91.4
	110	1	.5	.5	91.8
	140	2	9	9	92.7
	150	1	.5	.5	93.2
	200	4	1.8	1.8	95.0
	250	1	.5	.5	95.5
	300	1	.5	.5	95.9
	320	1	.5	.5	96.4
	360	1	.5	.5	96.8
	400	1	.5	.5	97.3
	440	1	.5	.5	97.7
	460	1	.5	.5	98.2
	600	1	.5	.5	98.6
	800	2	9	9	99.5
	999	1	.5	.5	100.0
	TOTAL	220	100.0	100.0	

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY .4 OF OCCURRENCES



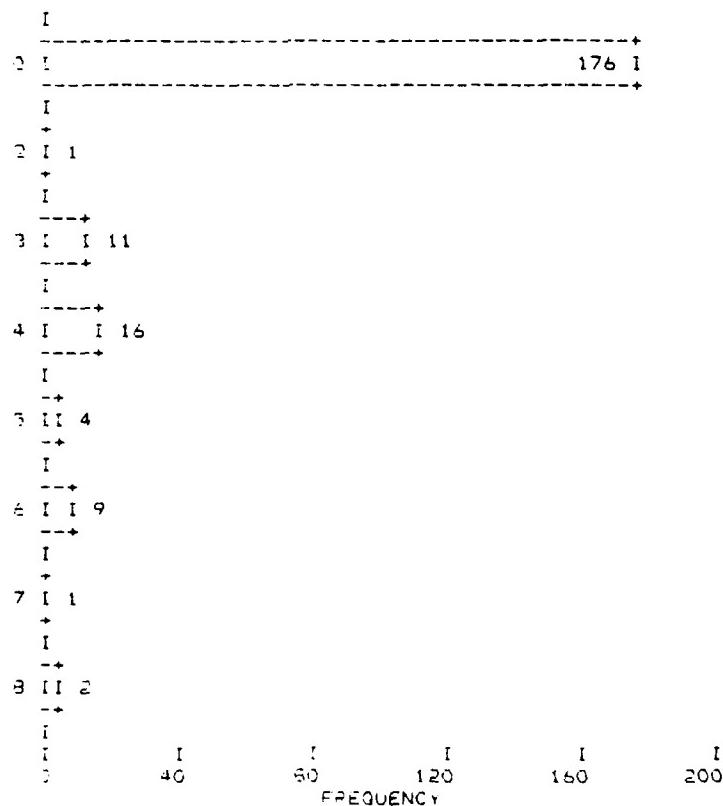
MEAN	38.050	STD ERR	8.633	MEDIAN	0.0
MODE	0.0	STD DEV	128.052	VARIANCE	16397.390
ALPTOSIS	27.135	S E KURT	1.991	SKENNESS	4.899
S E SKEW	164	RANGE	999.000	MINIMUM	0.0
MAXIMUM	999.000	SUM	8371.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	0.0	75.00	0.0
90.00	89.500				

VALID CASES 220 MISSING CASES 0

2.7 WEIGHT

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	0	176	80.0	80.0	80.0
	2	1	5	5	80.5
	3	11	5.0	5.0	85.5
	4	16	7.3	7.3	92.7
	5	4	1.8	1.8	94.5
	6	9	4.1	4.1	98.6
	7	1	5	5	99.1
	8	2	9	9	100.0
	TOTAL	220	100.0	100.0	



M-EAN	291	STD ERR	128	MEDIAN	0 0
MODE	0 0	STD DEV	1 294	VARIANCE	3 586
KURTOSIS	2 651	S E KURT	1 991	SKENNESS	1 958
S E SKEW	164	RANGE	8 000	MINIMUM	0 0
MAXIMUM	8 000	SUM	196 000		
PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10 00	0 0	25 00	0 0	33 30	0 0
50 00	0 0	66 70	0 0	75 00	0 0
90 00	4 000				
VALID CASES	220	MISSING CASES	0		

E W D

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